Exhibit B

Page 1

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2   UNITED STATES DISTRICT COURT
     SOUTHERN DISTRICT OF NEW YORK
3   - - - - - - - - - - - - - - - - - -x
     SECURITIES AND EXCHANGE
4   COMMISSION,

5   Plaintiff,
                                       Case No.
6   against   20-cv-1(AT)(SN)

7   RIPPLE LABS, INC., BRADLEY
     GARLINGHOUSE, and CHRISTIAN A.
8   LARSEN,

9   Defendants.
     - - - - - - - - - - - - - - - - - -x
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12   VIDEOTAPED DEPOSITION OF ███████████, Ph.D.

13   New York, New York

14   Friday, February 18, 2022

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23   Reported by

24   JEFFREY BENZ, CRR, RMR

25   JOB NO. 206137

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 4

 5   February 18, 2022

 6   9:16 a.m.

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 9   Videotaped Deposition of ███████████, Ph.D.,

10   taken at Debevoise & Plimpton LLP, 919 Third

11   Avenue, New York, New York, before Jeffrey Benz, a

12   Certified Realtime Reporter, Registered Merit

13   Reporter and Notary Public of the State of New

14   York.

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2   A P P E A R A N C E S:

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4   FOR THE PLAINTIFF:

5   U.S. SECURITIES AND EXCHANGE COMMISSION

6   175 West Jackson Boulevard

7   Chicago, Illinois 60604

8   BY: ROBERT MOYE, ESQ.

9   -and-

10   200 Vesey Street

11   New York, New York 10281

12   BY: MARK SYLVESTER, ESQ.

13   BENJAMIN HANAUER, ESQ (remotely)

14   DAPHNA WAXMAN, ESQ. (remotely)

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 2   A P P E A R A N C E S: (Ctd.)

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 4   FOR DEFENDANT RIPPLE LABS:

 5        KELLOGG, HANSEN, TODD, FIGEL & FREDERICK

 6                1615 M Street, NW

 7                Washington, District of Columbia 20036

 8        BY:   REID FIGEL, ESQ.

 9                CLAYTON MASTERMAN, ESQ.

10                KYLIE KIM, ESQ.

11                COLLIN WHITE, ESQ.  (remotely)

12                BETHAN JONES, ESQ. (remotely)

13                GAVAN GIDEON, ESQ. (remotely)

14                ELIANA PFEFFER, ESQ. (remotely)

15                JUSTIN BERG, ESQ.  (remotely)

16                     -and-

17        DEBEVOISE & PLIMPTON

18                919 Third Avenue

19                New York, New York 10022

20        BY:   DANIEL MARCUS, ESQ.  (remotely)

21                     -and-

22                801 Pennsylvania Avenue NW

23                Washington, District of Columbia 20004

24        BY:   MATT HIRSCH, ESQ.

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 2    A P P E A R A N C E S: (Ctd.)

 3

 4    FOR DEFENDANT BRADLEY GARLINGHOUSE:

 5         CLEARY GOTTLIEB STEEN & HAMILTON

 6              2112 Pennsylvania Avenue, NW

 7              Washington, District of Columbia 20037

 8         BY:   JORGE BONILLA LOPEZ, ESQ. (remotely)

 9

10    FOR DEFENDANT CHRISTIAN A. LARSEN:

11         PAUL, WEISS, RIFKIND, WHARTON & GARRISON

12              1285 Avenue of the Americas

13              New York, New York 10019

14         BY:   MARTIN FLUMENBAUM , ESQ. (remotely)

15              EMILY GLAVIN, ESQ. (remotely)

16

17    ALSO PRESENT:

18         MATTHEW CHIN-QUEE, Videographer

19         DEBORAH McCRIMMON, Ripple Labs, Inc. (remotely)

20         KYLE E. CHERMAK, Debevoise & Plimpton (remotely)

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2   THE VIDEOGRAPHER: We're now on the

3   record. This is the start of Tape Number 1

4   of the videotape deposition of ███████████,

5   in the matter Securities and Exchange

6   Commission v. Ripple Labs, Inc., et al., in

7   the United States District Court, Southern

8   District of New York, Number 20-CV-1

9   (AT)(SN).

10   The deposition's being held at

11   919 Third Avenue, New York, New York, on

12   February 18, 2022, at approximately

13   9:16 a.m.

14   My name is Matthew Chin-Quee, from

15   TSG Reporting, and I'm the legal video

16   specialist. The court reporter is Jeffrey

17   Benz, in association with TSG Reporting.

18   Will counsel please introduce

19   yourselves.

20   MR. FIGEL: Reid Figel, with Clayton

21   Masterman and Kylie Kim, representing

22   defendant, Ripple Labs, Incorporated.

23   MR. MOYE: Robert Moye and Mark

24   Sylvester here for the SEC.

25   MR. FIGEL: And we have an agreement

Page 7

1 ███

2   that counsel who's participating by video

3   conference, appearances are already noted

4   for the court reporter record, and the --

5   deemed included in the video record.

6   THE VIDEOGRAPHER: Thank you.

7   Will the court reporter please swear

8   in the witness.

9 ███████, Ph.D.,

10   called as a witness, having been first

11   duly sworn by Jeffrey Benz, a Notary

12   Public within and for the State of New

13   York, was examined and testified as

14   follows:

15 EXAMINATION BY MR. FIGEL:

16   Q.   Good morning. Could you state your

17 name for the record, please.

18   A.   ██████.

19   Q.   And, Mr. ████ do you prefer to be

20 called Mr. ███ or Dr. █████

21   A.   I suppose for this setting, why don't

22 we say Dr. █████

23   Q.   You understand you're testifying under

24 the same oath that you would take if you were

25 testifying in a courtroom --

Page 8

1

2   A.   I understand.

3   Q.   And you also understand that the

4 two reports that you submitted in this

5 litigation are also submitted under oath?

6   A.   I understand.

7   Q.   Any reason today that you can't give

8 your best truthful and accurate testimony?

9   A.   No reason.

10   Q.   Have you ever been deposed before?

11   A.   Yes, I have.

12   Q.   How many times?

13   A.   One time.

14   Q.   In what matter?

15   A.   SEC versus Rio Tinto.

16   Q.   And have you ever testified in any

17 other proceeding in any context?

18   A.   No. I've submitted written testimony

19 in that matter, I've been deposed, but that's

20 the extent of my testimony experience.

21   Q.   No personal litigation in which you

22 were a testifying witness?

23   A.   Correct.

24   Q.   You submitted both an expert report

25 and a rebuttal report in connection with this

Page 9

1 █████

2 case. Is that correct?

3   A.   Yes, that's correct.

4   Q.   I'd like to show you what's been

5 marked as -- we'll start with Exhibit 1.

6   (Amended expert report of █████ ████

7   was marked Exhibit 1 for identification, as

8   of this date.)

9   MR. FIGEL: This is for the court

10   reporter.

11   THE COURT REPORTER: That's very nice

12   but it's not necessary.

13   MR. FIGEL: All right.

14   MR. FLUMENBAUM: Excuse me. It's hard

15   to hear Dr. █████ if he could speak up,

16   please.

17   THE WITNESS: Is this mic doing

18   anything?

19   THE VIDEOGRAPHER: It's just for the

20   video.

21   MR. FIGEL: Why don't we --

22   THE VIDEOGRAPHER: Maybe I can put

23   that --

24   THE WITNESS: Is this better?

25   MR. FIGEL: Mr. Flumenbaum, are you

1 █████

2   able to hear Dr. ████ now?

3   MR. FLUMENBAUM: Is he talking now?

4   THE WITNESS: Testing, testing. Is

5   this satisfactory?

6   MR. FLUMENBAUM: Thank you.

7   Q.   I show you what's been marked as ████

8 Exhibit 1. Do you recognize that document?

9   A.   I do. It appears to be my opening

10 report in this matter.

11   Q.   And does Exhibit 1 set forth all the

12 affirmative opinions you intend to offer in this

13 case?

14   A.   I believe so, yes.

15   Q.   And does it contain the bases for all

16 of the opinions that you intend to offer?

17   A.   Well, I have opinions also expressed

18 in my rebuttal report.

19   Q.   We'll get to that. I'm just talking

20 about in your open report.

21   A.   My opening report represents the

22 opinions of my opening report.

23   Q.   And you understand that that Exhibit 1

24 is also submitted under penalty of perjury,

25 correct?

1 █

2   A.   Yes, I understand.

3   Q.   And nothing was omitted from that

4 report that you deemed to be necessary to

5 support the opinions that you express in that

6 report; is that correct?

7   A.   I believe that's correct. Yes.

8   Q.   I'd like to now show you what we'll

9 mark as █ Exhibit 2.

10   (Rebuttal report of █ was

11   marked Exhibit 2 for identification, as of

12   this date.)

13   Q.   Do you recognize this document,

14 Dr. █

15   A.   I do. This appears to be my rebuttal

16 report in this matter.

17   Q.   And does your rebuttal report include

18 all the rebuttal opinions you intend to offer in

19 connection with this litigation?

20   A.   Well, I have been directed by the SEC

21 to do some additional analysis in response to

22 the reports of Dr. Marais and Professor Fischel.

23 Those are not yet contained in this rebuttal

24 report.

25   MR. FIGEL: Let me inquire of

1 ███

2 Mr. Moye. Do you intend to seek leave of

3 the court to submit additional expert

4 reports from Dr. ███

5   MR. MOYE: The plan, what we expect to

6 do is to supplement within the expert

7 discovery period, so in other words, the

8 few additional comments that we believe are

9 appropriate to make based on the rebuttal

10 report will be included in a very short

11 supplement under 26(e).

12   MR. FIGEL: All right. Just so the

13 record's clear, we have not yet been

14 provided with a copy of any supplemental

15 reports of Dr. ███ I don't think it's

16 fair for us to be expected to examine him

17 based on his prognostication about what may

18 be included in those reports so we --

19   MR. MOYE: We agree.

20   MR. FIGEL: -- we reserve our rights

21 to call Dr. ███ back in the event you

22 submit a supplemental report.

23   MR. MOYE: We agree, and we'll discuss

24 that, and we'll be happy to make him

25 available for a reasonable amount of time.

1   ███

2   Q.   With respect to your rebuttal report,

3   Dr. ████ as you sit here today, do you have any

4   opinions about the matters contained in your

5   rebuttal report, other than what's set forth in

6   the report?

7   A.   No.   The rebuttal report stands

8   complete as of today.

9   Q.   Okay.   And your rebuttal report

10   includes all the facts and data that you

11   considered in support of the opinions you

12   expressed in Exhibit 2, correct?

13   A.   I believe so, yes.

14   Q.   All right.   Other than --

15   MR. FIGEL: And, Mr. Moye, what I

16   propose that we do is we will treat

17   whatever engagement that he is working on

18   now as postdating the dates of his

19   two reports.

20   MR. MOYE: Sure.

21   MR. FIGEL: So none of my questions

22   are going to go to any other opinions you

23   may be working on now.   Fair enough?

24   But we reserve our rights with respect

25   to any supplemental or subsequent opinions

1   █████

2   you provide.

3   Q.   Other than what's set forth in

4 Exhibits 1 and 2, and other than whatever you

5 may be working on prospectively, were you asked

6 to analyze any issues in this case that are not

7 discussed or reflected in either Exhibit 1 or

8 Exhibit 2?

9   MR. MOYE: So I'm going to object to

10   that question to the extent that it would

11   require Dr. █████ to disclose any

12   conversations he had with counsel for the

13   SEC because that would infringe on work

14   product.

15   Q.   Do you understand Mr. Moye's

16 instruction?

17   A.   I believe so.

18   Q.   All right. Without revealing any

19 communications you may have had with the SEC, in

20 the course of your engagement for this matter,

21 have you or people working under your direction

22 performed any work that's not reflected in

23 either Exhibit 1 or Exhibit 2?

24   A.   That's a very broad question, have

25 they done any work.

1

2   I -- that's so broad that I don't

3   think I can -- I can -- I can say no, that

4   nobody did any work.

5   Q.   Tell me what work you're aware of, as

6   you sit here today, that is not -- in the -- in

7   the context of this engagement, in this

8   litigation, that's not reflected in Exhibits 1

9   and 2.

10   A.   I can't think of any examples. But if

11   you're asking me to testify whether somebody in

12   my support team may have done something, they

13   may have done something, but I'm not aware, I

14   cannot -- sitting here today, I cannot think of

15   any work that was done that's not reflected in

16   either of these two reports, setting aside

17   ongoing work.

18   Q.   Are you aware of any models that

19   anyone working under your direction in this case

20   tested or considered in connection with the

21   preparation of your report?

22   MR. MOYE: Same objection as before.

23   Please make sure your answer does not

24   reveal any communications that you've had

25   with SEC attorneys about this matter.

Page 16

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2   A.   Again, that's so very broad.

3   I expect that in the ordinary course

4   of doing research, we may have considered some

5   alternative parameterizations of some

6   econometric models.

7   As I say, I -- that's -- that's -- I

8   consider that routine and normal and ordinary.

9   So I'm not going to say that -- that

10   there are no alternative models which may have

11   been run at any point.

12   Q.   Are you aware of any?

13   A.   Well, as an example, when considering

14   the estimation period behind the econometric

15   models, we settled on a 180-day window ending

16   three days prior to an event date to be tested.

17   We may have considered models ending one day

18   prior to the event date being tested. We may

19   have considered models ending five days prior.

20   Again, that's -- that's -- the

21   ordinary -- the ordinary course of doing

22   research. That -- that's one example that I can

23   think of. But I --

24   Q.   Other than the endpoint for the

25   periods tested, can you think of any other

1

2   models or regressions or consideration of events

3   or categorizations that you or your staff

4   considered that's not reflected in the report?

5   MR. MOYE: Same objection as before.

6   A.   We may have experimented with

7   volume-weighted indices at one point.

8   But that would be -- that's --

9   that's -- sitting here today, that's about all I

10   can remember, is something -- an alternative we

11   may have considered that is not in these

12   reports.

13   Q.   Did you consider any other estimation

14   models other than the ones set forth in your

15   opening report?

16   MR. MOYE: Same objection, work

17   product.

18   A.   Again, beyond sort of the ordinary

19   flow as we've already discussed, no. I can't

20   remember any.

21   Q.   When you said that you -- just a

22   second.

23   When you say you experimented with

24   volume-weighted indices, what do you mean?

25   A.   Well, we have data on -- we have

1 ███

2 pricing data for several digital tokens. From

3 those pricing data, we can construct returns.

4 And one can build an index of those returns, in

5 a number of different ways.

6   Two easy ways or two common ways are

7 what's called an equal-weighted index, where one

8 simply takes the simple average return across

9 different tokens. And another one would be some

10 sort of volume-weighted index, where those

11 digital tokens that have, for example, a larger

12 market cap get greater weight in the

13 construction of that index.

14   In the case of digital tokens, bitcoin

15 is so overwhelmingly dominant in a volume sense

16 that, as a practical matter, there's very little

17 difference between a volume-weighted index and

18 simply bitcoin.

19   So after some normal experimentation,

20 I decided that there was -- there was no utility

21 in a volume-weighted index in the context of

22 these kinds of assets that we're discussing

23 because bitcoin just dominates everything.

24   So we settled, I think, fairly quickly

25 on considering just equal-weighted indices.

1 ▮

2   Q.   If I understand your answer, in

3   substance, what you're saying is that if you

4   look at the dollar volume of cryptocurrencies

5   traded on various exchanges, the vast majority

6   of that is dominated by bitcoin, correct?

7   A.   Correct.

8   Q.   And that the amounts of both volume

9   and, call it dollar value of Ether lumens is

10 trivial in comparison to the information that's

11 available about bitcoin? Correct?

12   A.   Well, I mean, "trivial" is a word.

13 Again, just as an arithmetic fact, a

14 volume-weighted index, again, just

15 arithmetically, is simply not going to be very

16 different from bitcoin's return.

17   Q.   And did you elect to use

18 equal-weighted indices as opposed to

19 volume-weighted indices or bitcoin,

20 representation-weighted indices, because the

21 weighted indices undermined the force of the

22 conclusions that you're expected -- that you

23 have expressed in your report?

24   A.   No, not at all.

25   We have one -- some of the models that

Page 20

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2   are here are based only on bitcoin. Others have

3   bitcoin plus Ether. Some have bitcoin plus

4   Ether plus lumens.

5   And then when it came time to add some

6   of the other tokens that -- whose history begins

7   much later, at that point, we -- I switched to

8   an equal-weighted index. But there are results

9   here, which are -- which consider only bitcoin,

10   for example, as an alternative driver.

11   So I -- I simply felt that a

12   volume-weighted index was effectively redundant,

13   to a bitcoin-based model.

14   Q.   All right. Now, if you turn to

15   paragraph 11 on page 2 of Exhibit 1.

16   You'll see that you reserve the right

17   to modify or to supplement this report?

18   A.   Yes. I see that.

19   Q.   Just so the record is clear, is there

20   anything today that you would like to modify or

21   supplement about the information contained in

22   Exhibit 1?

23   A.   Well, as we've discussed, I'm -- I am

24   continuing to work on a supplemental analysis.

25   Q.   Well, a -- are you finished with your

Page 21

1

2   answer?

3   A.   Yes.

4   Q.   As I understood your prior testimony,

5   the supplemental analysis went to rebuttal

6   issues. Do you intend to provide a supplemental

7   analysis to any of the opinions or data or other

8   information that's set forth in your opening

9   report, Exhibit 1?

10   A.   The -- if I -- if I had to

11   characterize it, I suppose the more helpful

12   characterization is that it is a supplement to

13   Exhibit 1 in the sense that it is primarily

14   addressing issues that were raised in some

15   rebuttal reports which were written in response

16   to Exhibit 1.

17   That's why I say the rebuttal -- it's

18   a rebuttal analysis in a sense. But if -- if I

19   have to characterize and -- and pick one and say

20   whether I'm supplementing my first report or my

21   second report, I suppose the better

22   characterization is that I am supplementing the

23   first report.

24   Q.   And let's make sure that we're making

25   a clear record here. When you say "supplement,"

Page 22

1 ▮

2   I want to make sure that -- withdrawn.

3   With respect to whatever work you're

4   doing that may lead to additional reports, is

5   there anything that is in Exhibit 1 that, as you

6   sit here today, you believe is inaccurate or

7   incomplete?

8   A.   No, not at all.

9   Q.   All right. Same question with respect

10 to Exhibit 2. Is there -- putting aside

11 whatever it is you're doing prospectively, is

12 there anything in Exhibit 2, as you sit here

13 today, that you believe is inaccurate or

14 incomplete?

15   A.   I don't believe so, no.

16   Q.   According to your resume, you spent a

17 lot of time working in the private sector at

18 ▮; is that correct?

19   A.   I worked at ▮ for approximately

20 15 years. I think it was a little over

21 15 years.

22   Q.   Why did you decide to leave ▮?

23   A.   To pursue other career -- a different

24 career direction.

25   Q.   And what was that different career

1   ███

2   direction that you decided to pursue when you

3   left ██████?

4   A.   I decided to become an economic

5   consultant.

6   Q.   How long have you been an economic

7   consultant?

8   A.   I joined my first consultancy, I

9   believe, in ████████████.

10   Q.   ████████████████ ████████████

11   A.   ████████████.

12   Q.   And why did you leave your prior

13   consulting firm to ████████ ████████████?

14   A.   Discussions with ██████ and decided

15   that it would be a -- a good environment to --

16   to join.

17   Q.   In connection with why your current

18   employment ██████ ████████████, obviously the

19   SEC is one of your clients, correct?

20   A.   The SEC has engaged me, yes.

21   Q.   Have they engaged you on any other

22   litigation or matter or investigation other than

23   this one?

24   A.   Yes, they have.

25   Q.   Approximately how many other

Page 24

1   █████

2   engagements do you have with the SEC with

3   respect to litigation other than this

4   litigation?

5   A.   I have two other engagements that --

6   that I consider litigation engagements, in

7   addition to this one.

8   MR. FIGEL: Mr. Moye, just so we can

9   avoid a spat, are those engagements

10   confidential?

11   MR. MOYE: So ██████████ obviously is

12   not.

13   I don't believe the others are public.

14   A.   Nothing has been -- I haven't filed

15   any reports in the other one.

16   MR. MOYE: So until the filing of the

17   report, we would consider those

18   confidential.

19   Q.   Do you have any clients or are you

20   doing work for any entity other than the

21   Securities and Exchange Commission, currently?

22   A.   I -- I support other experts at

23   ████████ in helping them to prepare reports and

24   conduct analyses for a variety of clients.

25   As -- as an expert witness, I'm not

Page 25

1   █████

2   currently doing work for any entity besides the

3   SEC.

4   Q.   Have you ever done any work with you

5   as the expert for any entity while employed at

6   ████████████   other than the SEC?

7   A.   Serving as the expert, no.

8   Q.   So the only person or entity that's

9   retained you as an expert since you've joined

10 ████████████   is the SEC. Correct?

11   A.   That is correct.

12   Q.   What is the area of expertise that you

13 claim you have that you believe allows you to

14 offer expert testimony in this case?

15   A.   Well, I have a Ph.D. in economics,

16 with focus on ████████████████████████████.

17   I've been a practicing economist for

18 20-some years, focused on -- primarily on

19 empirical economic research. I've conducted

20 event studies as part of my employment. I've

21 testified on event studies on one occasion.

22   And I believe I have adequate

23 credentials to offer opinions in this matter.

24   Q.   Okay. Other than in the field of

25 economics and econometrics, do you claim any

1

2   expertise that would allow you to express an

3   opinion, an expert opinion, in this case?

4   A.   I --

5   MR. MOYE: I'm sorry. Can I clarify

6   that question? Did you mention statistics

7   or just econometrics?

8   In your question.

9   MR. FIGEL: My question -- wait a

10   second.

11   -- was limited to the field of

12   economics and econometrics.

13   MR. MOYE: Okay. I'm going to object

14   to the extent that you mischaracterize his

15   prior testimony.

16   A.   Well, as I define the words "economics

17   and econometrics," which would include

18   statistics, my opinions -- I would characterize

19   my opinions as being offered within that broad

20   umbrella. I'm not offering, for example, legal

21   opinions, and I -- I'm not a software engineer.

22   Q.   Do you claim to be an expert in

23   statistics?

24   A.   I am an expert in econometrics, which

25   is the application of statistics to economic

1

2   data and economic problems.

3   Q.   You don't consider statistics to be a

4   separate discipline for which one could or could

5   not be qualified from being an economist or an

6   econometrician?

7   MR. MOYE: Objection.   Argumentative.

8   A.   I recognize that one can get a degree

9   purely in statistics.

10   Q.   And you don't have one, correct?

11   A.   I -- I do not have a degree purely in

12   statistics.

13   Q.   And you never practiced as a

14   statistician, have you?

15   A.   Statistics is integral to the work

16   that I've done professionally for 20 years.

17   I've described myself as an economist.   I do not

18   describe myself as a statistician, but

19   statistics is, as I said, an integral part of

20   the work I've been doing professionally for

21   20 years.

22   Q.   So the answer to my question is no,

23   you've never practiced as a statistician,

24   correct?

25   A.   The only way I can address that

Page 28

1

2   question is to say I haven't personally

3   described myself as a statistician.

4   However, in my professional work, I

5   routinely use statistics as part of my work. So

6   in the sense that my practical work requires and

7   utilizes statistics, the answer's yes.

8   Q.   Have you ever held an academic

9   position?

10   A.   No, I have not.

11   Q.   Now, you said you've only testified

12   once in any proceeding in -- in litigation

13   anywhere during your lifetime. Correct?

14   A.   I believe that's true.

15   Q.   And have you ever been found qualified

16   by a court to offer expert opinion testimony?

17   MR. MOYE: Objection to the extent

18   you're asking him for a legal opinion.

19   A.   All I can say is that my testimony,

20   or -- no part of my testimony has ever been

21   disqualified.

22   Q.   I'm asking a different question. I'm

23   asking the question whether a court has ever

24   found you competent and qualified to offer

25   expert opinion testimony.

Page 29

1

2   MR. MOYE: It's the same objection.

3   A.   I -- I don't know how to answer the

4 question. If -- if you're asking have I ever

5 received a letter from the court saying,

6 Congratulations, you're qualified, no, I

7 haven't.

8   I have -- I've submitted written

9 testimony, I've submitted deposition testimony.

10 The matter is still pending and outstanding.

11 That's all I can say.

12   Q.   Has Judge Torres in the Rio --

13 Judge Torres is the presiding judge in the

14 Rio Tinto case, correct?

15   A.   I'll take your word for it. I'm not

16 very good with names.

17   Q.   To your knowledge, have you been

18 qualified to offer expert opinion testimony in

19 the Rio Tinto case?

20   MR. MOYE: Same objection as before.

21   A.   I have not -- all I can say is I have

22 not been disqualified. My -- my testimony is

23 still pending. The matter is still pending.

24 The trial has not yet been scheduled. As far as

25 I know, I will be testifying at trial.

Page 30

1

2   Q.   So to your knowledge, if you're found

3   to be competent and qualified to offer an

4   opinion in this case, it will be the first time,

5   to your knowledge, that you've ever been

6   qualified as an expert, correct?

7   MR. MOYE: Objection. Argumentative

8   and vague.

9   A.   I -- I apologize, Mr. Figel. I mean,

10   I am -- I've only been doing consulting for a

11   couple of years. If -- if there is some

12   affirmative step in which somebody says, You're

13   qualified, that affirmative step has not yet

14   happened.

15   Based on the schedule, it's more

16   likely to happen first in the Rio Tinto matter,

17   simply because that's so much further along than

18   in this matter.

19   Q.   And isn't it true that your testimony

20   in the Rio Tinto matter is subject to a

21   disqualification motion?

22   A.   Yes. They've filed motions against

23   me, and I believe -- I think we filed motions

24   against them, and those motions are still

25   pending.

1

2   Q.   So it hasn't been decided whether

3   you're qualified to give opinion testimony in

4   the Rio Tinto case, correct?

5   MR. MOYE: Objection to the extent

6   you're asking for a specific legal opinion.

7   A.   To the best of my knowledge, the judge

8   has not ruled on any of those motions.

9   Q.   What academic background, if any, do

10 you have about the cryptocurrency markets?

11   A.   Cryptocurrencies were not a subject of

12 my formal academic training. I would say they

13 didn't exist yet.

14   Q.   So the answer is none?

15   A.   I would say that's fair.

16   Q.   And you said you've never held an

17 academic position, correct?

18   A.   Correct. Beyond maybe a teaching

19 assistantship in college, but not -- not a

20 professorship.

21   Q.   So you've never taught a course about

22 the digital asset market, correct?

23   A.   Correct.

24   Q.   Have you ever published a paper that

25 addressed digital assets or cryptocurrency in

Page 32

1

2   any way?

3   A.   I don't believe so, no.

4   Q.   Have you ever given a public talk that

5   discussed digital assets or cryptocurrency in

6   any way?

7   A.   No, I have not.

8   Q.   Other than in this case, have you ever

9   conducted an event study that related to the

10   cryptocurrency market?

11   A.   No.

12   Q.   Other than in this case, have you ever

13   conducted an event study that applied to digital

14   assets in any respect?

15   A.   No.

16   Q.   Other than in this case, have you ever

17   done an event study that applied to the pricing

18   of digital assets or cryptocurrencies?

19   A.   No.

20   Q.   Are you claiming to be off-- to be

21   qualified to offer an expert opinion about the

22   functionality or capabilities of various digital

23   assets?

24   A.   If you're asking about what I would

25   describe as the software, software engineering,

1 ███

2 exactly how blockchains work, that's not my

3 domain of expertise. My domain of expertise

4 relates to economics, asset pricing and the

5 matters that I'm offering opinions on.

6   Q.   Are you claiming to be qualified to

7 offer an expert opinion about the uses of

8 various digital assets?

9   A.   Consistent with how an economist might

10 understand how people use assets and invest, I

11 suppose so. If -- if -- again, if you're asking

12 about -- expert opinion on whether the consensus

13 algorithms of XRP, how those compare to bitcoin,

14 then no.

15   Q.   What training or prior work have you

16 done that would allow you to express an opinion

17 on how people use digital assets or invest in

18 digital assets?

19   MR. MOYE: I'm going to object to the

20   extent that you're mischaracterizing his

21   prior answer.

22   Go ahead.

23   A.   Well, economists study markets. They

24 study market prices. They study transactions in

25 markets.

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1   ███

2   To the extent that we're discussing

3   prices of digital tokens and markets around

4   digital tokens, I feel that as an economist, I'm

5   qualified to offer opinions related --

6   MR. FLUMENBAUM: If you lean back, I

7   can't hear him anymore.

8   THE WITNESS: Sorry.

9   MR. FIGEL: Why don't we go off the

10   record for just a second, do an experiment

11   and try and move the mic closer to

12   Dr. ███ That might --

13   THE VIDEOGRAPHER: We're going off the

14   record at 9:49 a.m.

15   (Discussion off the record.)

16   THE VIDEOGRAPHER: We're back on the

17   record at 9:54 a.m.

18   Q.   Dr. ███ I'm not sure you finished

19   your answer. Do you remember the question?

20   A.   No, I'm sorry, I don't.

21   MR. FIGEL: Maybe we could ask the

22   court reporter to read back the last

23   question and Mr. Metz's answer up to the

24   point where he stopped speaking.

25   (The record was read back.)

1

2   A.   -- thereto.

3   Q.   As I understand your testimony, the

4   only study of markets or market prices that

5   you've done that relate to digital assets or

6   cryptocurrency occurred in connection with your

7   engagement in this case. Is that correct?

8   A.   That's correct, yes.

9   Q.   So the entirety of your background as

10   it relates to the digital assets or crypto--

11   cryptocurrency markets relate to the work you

12   did in connection with your engagement in this

13   case. Correct?

14   A.   Sorry, could you repeat the question?

15   MR. FIGEL: Would you mind reading

16   back.

17   (The record was read back.)

18   MR. MOYE: Objection. Argumentative.

19   A.   I -- I -- I just don't -- I just don't

20   think I can accept -- I don't think that's a

21   fair characterization.

22   The entirety of my background as a --

23   both my academic training and my professional

24   work as an economist has equipped me, I believe,

25   to address economic issues in this market and

Page 36

1   ■

2   many other markets.

3   I -- I have not conducted empirical

4   analyses of digital token prices outside of the

5   work I've done in this matter.

6   Q.   So is it your testimony that expertise

7   in one market qualifies you to offer expert

8   opinion testimony about another market?

9   MR. MOYE: Objection to the extent

10   that mischaracterizes his answer.

11   A.   I don't think that's what I said.

12   Economists study prices and study markets.

13   An economist could discuss stock

14   prices, bond prices, commodity prices, could

15   discuss the price of oil, could discuss the

16   price of bitcoin, has econometric tools to

17   investigate and apply to data from a variety of

18   different markets.

19   That's routine in the ordinary course

20   of being an economist.

21   Q.   Let me just see if I can break up your

22   answer, Dr. Metz. We agree you have never

23   studied digital assets or the cryptocurrency

24   market other than in connection with your

25   engagement in this case. Correct?

1

2   A.   I'll repeat my prior testimony.   I

3   have never conducted an empirical analysis of

4   digital token prices outside of the work I've

5   done in this case.

6   Q.   So your testimony is that whatever

7   work you've done in other markets and in other

8   cases qualifies you to express an expert opinion

9   about the use of digital assets, trading in

10   digital assets, pricing in digital assets in the

11   cryptocurrency and in digital asset markets,

12   correct?

13   MR. MOYE: Objection. Asked and

14   answered. Objection to the extent you're

15   mischaracterizing his prior testimony

16   instead of asking a new question. And

17   argumentative.

18   MR. FIGEL: Mr. Moye, we've had a very

19   collegial relationship; but I think the

20   standing rule is you get to say, Objection

21   to form. Speaking objections are really

22   not permitted, and I view that as coaching

23   the witness.

24   So if we could have an agreement, in

25   the future you'll just say, "Objection,"

1 ▮

2   I'll either reformat my question or I'll

3   ask him to answer.

4   MR. MOYE: I'm sorry, Reid. I'm not

5   trying to be difficult. I don't believe

6   that's been our prior stipulation, and I

7   certainly don't want to coach the witness.

8   But I don't know how you can correct a

9   question if I don't give you some

10   information about what I think the problem

11   with the form is.

12   MR. FIGEL: If I have a question about

13   your problem with the form of my question,

14   I'll ask you; but, otherwise, I would

15   prefer if you could just say, "Objection."

16   MR. MOYE: No. I understand that.

17   But if there's an issue some day about the

18   transcript and whether it's acceptable and

19   I've only objected to form because of your

20   instruction, I feel like you would have cut

21   me off from explaining in the moment what I

22   thought was wrong with the answer.

23   I certainly don't want to belabor the

24   objection -- the record with things that I

25   don't need to say.

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1   ■■■

2   MR. FIGEL: My request would be that

3   if you have an objection to form, you just

4   say, "Objection," and not have a speaking

5   objection, which I view as an effort to

6   coach the witness.

7   MR. MOYE: Well, I'll consider your

8   request, and I'll try to be helpful. But I

9   cannot agree that I -- that I will not give

10   a proper form objection. And

11   "argumentative" is proper form objection,

12   in my experience.

13   Q.   Mr. ■■■ -- Dr. ■■■ did you

14   understand my question?

15   A.   Could we repeat the question, please.

16   MR. FIGEL: I can read it back.

17   Q.   So your testimony is that whatever

18   work you've done in other markets and in other

19   cases qualifies you to express an expert opinion

20   about the use of digital assets, trading in

21   digital assets, pricing in digital assets in the

22   cryptocurrency and digital asset markets,

23   correct?

24   A.   I believe I'm qualified to offer the

25   opinions that I've offered in this matter. I've

1

2   conducted numerous event studies in different

3   markets, on different type of assets. There

4   is -- I can apply that same methodology and

5   technique and analytical background to this

6   market.

7   Q.   In connection with any of the opinions

8   expressed in Exhibits 1 or Exhibit 2, did you

9   make any assumptions about any connection

10   between XRP and Ripple?

11   A.   That's an interesting question.

12   Q.   Thank you.

13   A.   The -- the way I would answer that

14   question is, the experimental analytical design

15   of primarily my -- my opening report, the -- now

16   I'm going to sound like an economist. But the

17   null hypothesis that's being tested is that

18   there is no connection between Ripple Labs and

19   XRP markets. That's the hypothesis to be

20   tested. And I go about testing that hypothesis.

21   So from a statistical point of view,

22   the assumption is that Ripple Labs and XRP

23   markets are independent of each other.

24   Q.   My question is, as you applied your

25   judgment and your background to the opinions you

1

2   reached in your report, did you make any

3   assumptions about the relationship between

4   Ripple and XRP?

5   A.   I can't think of any particular

6   assumption I made. If -- at least as I'm

7   thinking about that question. For example, I

8   did not assume that Ripple could do things that

9   would move XRP prices.

10   I did not assume that that was true.

11   Q.   We'll come back to that.

12   Let me direct your attention now to

13   paragraph 24 of your report.

14   Are you with me?

15   A.   My -- paragraph 24 of my opening

16   report?

17   Q.   Yes.

18   A.   Yes.

19   Q.   And you write, Ripple has sold more

20   than 1.4 billion worth of XRP tokens through

21   various channels.

22   A.   Yes. That's what's written here.

23   Q.   Was that an assumption you made about

24   the relationship between Ripple and XRP?

25   A.   I wouldn't characterize that as an

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 1   ███

 2   assumption about the relationship. I -- that's

 3   a summary of data that we took from certain

 4   Ripple reports.

 5   Q.   And let me direct your attention now

 6   to Figure 6 on page 13.

 7   You with me?

 8   A.   Yes.

 9   Q.   This reflects data that you included

10   in your report that set out what you believe to

11   be the total amount of Ripple sales of XRP by

12   quarter. Is that correct?

13   A.   This summarizes the sales of XRP as

14   reported in Ripple's XRP market reports.

15   Q.   And did you prepare this?

16   A.   It was prepared at my direction.

17   Q.   When you say it was prepared at your

18   direction, what do you mean?

19   A.   I had a team working with me at

20   ███████   and I directed them to prepare certain

21   exhibits or conduct some analysis. And this was

22   an -- this was an exhibit that I asked them to

23   prepare.

24   Q.   And when you say you have a team, how

25   large is your team?

1   ███

2   A.   I don't know precisely. I would say

3   at any one time, on the order of four, five, or

4   six people, maybe sometimes more, maybe

5   sometimes less.

6   Q.   And did you review Figure 6 for

7   accuracy before you included it in your report?

8   A.   I did not personally audit the numbers

9   in the exhibit. I asked that this exhibit, as

10   all other exhibits in this report, go through

11   standard practices of audit and confirmation.

12   Q.   Did you write your report?

13   A.   I'm certainly responsible for my

14   report. I wrote -- some sections may have been

15   initially drafted by other parties. But in all

16   cases, I reviewed and edited and assumed

17   responsibility for the report in its entirety.

18   Q.   Which parties drafted portions of your

19   report, other than you?

20   A.   We're going back in time. But --

21   well, for example, this -- I -- a principal at

22   ███████ who was working with me named Sujay --

23   that's S-U-J-A-Y, D-A-V-E -- was working with me

24   and may have prepared the first draft of some

25   portions or -- some portions of the report.

1

2   Q.   Anyone else other than people at

3

4   A.   No.

5   Q.   Let me direct your attention to

6   paragraph 25.

7   Your report states, with a typo, As

8   show in Figure 5, Ripple reported that it raised

9   approximately 1.4 billion from sales of XRP,

10   through the fourth quarter of 2020.

11   Do you see that?

12   A.   I do see that.

13   Q.   What do you mean by "raised" in that

14   sentence?

15   A.   I mean sold from its inventory of XRP

16   tokens into the market and received proceeds of

17   approximately 1.4 billion.

18   Q.   When you say "proceeds," what do you

19   mean?

20   A.   They -- they sold or perhaps, through

21   market makers, directed to be sold tokens in

22   exchange for U.S. dollars, and the amount of

23   U.S. dollars was approximately 1.4 billion.

24   Q.   And you observe in paragraph 26 that

25   Ripple reported its sales of XRP on its

1

2   financial statements in two categories.

3   Correct? Programmatic sales and OTC sales?

4   A.   I see that, yes.

5   Q.   And in paragraph 26(a), you talk about

6   programmatic sales of XRP on digital asset

7   trading platforms?

8   Correct?

9   A.   I see that written there, yes.

10   Q.   So those are cash sales?

11   A.   My understanding is that the tokens

12   were sold for cash.

13   Q.   And in paragraph 26(b), you talk about

14   OTC sales were negotiated, block sales of XRP,

15   to large purchasers, including wealthy

16   individuals, hedge funds, other investment

17   firms, and financial institutions. Correct?

18   A.   Yes, I see that.

19   Q.   And those were also cash sales?

20   A.   Well, I -- depending on what you mean

21   by "cash sales," I believe they were sold in

22   exchange for U.S. dollars. Whether that was --

23   I doubt very much it was delivered in slips of

24   green paper to the door. But I -- my

25   understanding is they were sold for U.S.

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1

2   dollars.

3   Q.   And as you state in paragraph 27,

4   referring to Figure 6, your opinion is that

5   these two categories, approximately 745 million

6   in programmatic sales and approximately

7   698 million in OTC sales, which total about

8   1.5 billion, are the two components of the

9   1.4 billion in sales of XRP that you identified

10   in your report? Is that correct?

11   A.   Yes, that's correct.

12   Q.   Why did you include Ripple's sales or

13   alleged sales of XRP in your report?

14   A.   This section is a background section

15   on Ripple Labs, its -- its businesses, its

16   products and some data on its finances. This is

17   simply intended as a -- as a background section

18   to provide some context and information.

19   Q.   In what respects do you think that

20   this background is relevant to the opinions you

21   express in Exhibits 1 and 2?

22   A.   I -- it's included to be helpful to

23   the reader to provide some context to know what

24   Ripple Labs is, the products that it engages in,

25   which, of course, I do discuss later,

1

2   analytically.

3   I -- there's nothing -- there --

4   there's nothing in this section which was

5   intended to be here which I had any reason to

6   believe was in any way controversial. It's a

7   reporting of data from Ripple's own reports.

8   Q.   And did you rely on the dollar value

9   of these sales in connection with any of the

10   econometric models that you performed that led

11   to the opinions you express in Exhibits 1 and 2?

12   A.   No. The econometric models and

13   econometric analysis that I conduct does not

14   incorporate information of Ripple's sales of

15   XRP.

16   Q.   So what's the relevance, in your mind,

17   to the observations that you make about Ripple's

18   sales to the opinions you express?

19   A.   Again, I can only repeat my prior

20   testimony. This section was meant to be a brief

21   background section on Ripple Labs, its

22   businesses, some financial information.

23   I consider this a routine type of

24   section, when analyzing a company, to simply

25   provide some basic information, hardly

1 ███

2 exhaustive, of what that company does and some

3 information about its finances.

4   I -- that was -- that was the

5 intention of this section.

6   Q.   Well, in your mind, aren't

7 transactions over an exchange or through the OTC

8 market the transactions that -- the source data

9 that you rely on for your opinion? In other

10 words, you're -- you're -- withdrawn.

11   You -- you -- one of the variables

12 that you look at is the price impact of XRP.

13 Correct?

14   A.   Of the variables -- I -- I --

15   Q.   The dependent variable in your

16 study --

17   A.   The dependent variable are -- I'm

18 sorry. Please continue.

19   Q.   The dependent variable in your study

20 is the price of XRP. Correct?

21   A.   Strictly speaking, the change in the

22 log of the price of XRP. But, yes.

23   Q.   And so transactions, either

24 programmatic sale transactions or OTC

25 transactions are relevant to the price impact

1

2   that you purport to measure, correct?

3   A.   To the extent that they -- these

4   transactions moved the price, that would be

5   reflected in the price data that I use.

6   To the extent that Bob selling XRP to

7   Alice impacts the price, that price is reflected

8   in the data that I use.

9   Q.   And your understanding is, is that the

10   1.4 billion of sales that you identify in

11   Exhibit 6 are the transactions in which Ripple

12   sold XRP that would be the part of the data that

13   you relied on in your modeling and reports,

14   correct?

15   A.   I -- I'm sorry, could you repeat the

16   question?

17   Q.   I'll withdraw it.

18   Did you review any of the contracts by

19   which Ripple sold or transferred XRP to any

20   third party?

21   A.   No, I have not reviewed any such

22   contracts.

23   Q.   Why not?

24   A.   It wasn't pertinent to the opinions

25   that I was offering in this matter.

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 1                        Metz

 2        Q.   You're not a certified public

 3   accountant, are you?

 4        A.   No, I am not.

 5        Q.   Are you claiming to be an expert in

 6   financial accounting?

 7        A.   I'm familiar with financial

 8   accounting.  I've used financial accounting in

 9   my professional work for many years.  I'm not a

10   certified public accountant, and I don't believe

11   I'm offering any accounting opinions in this

12   matter.

13        Q.   If you'd listen to my question,

14   Dr. ████   Do you consider yourself to be an

15   expert in financial accounting?

16        A.   I can -- I can only restate my answer.

17   I'm not a certified public accountant.  As a

18   professional practicing economist, I utilize

19   financial accounting, and I believe I understand

20   the basic principles.  I'm not offering any

21   accounting opinions in this matter.

22             MR. FIGEL:  Can we get Tab 3, please.

23        Q.   I show you what's been marked as

24   Exhibit 3.  And I will represent to you that

25   this is a copy of the consolidated financial
```

1   ███

2   statements of Ripple Labs, Incorporated, for the

3   year ending December 31, 2019.

4   (Copy of consolidated financial

5   statements of Ripple Labs, Incorporated,

6   for year ending December 31, 2019, was

7   marked Exhibit 3 for identification, as of

8   this date.)

9   A.   Okay.

10   Q.   Have you seen this document before,

11   Dr. ████

12   A.   It looks familiar.

13   Q.   It's not listed as one of the

14   documents that you considered, in the appendix

15   to your report. Do you recall reviewing this in

16   connection with the preparation of your report?

17   A.   I recall reviewing some financial

18   data. If this was not among it, I -- I don't

19   have the list memorized.

20   Q.   Well, if you had reviewed it, would

21   you have included it on the list of items

22   considered?

23   A.   Well, I believe that the list is items

24   relied upon, not items considered.

25   Q.   Why don't we go to Exhibit 1, if you

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1   ███

2   would.

3   MR. MOYE: Appendix B?

4   MR. FIGEL: Appendix B, yes, thank

5   you.

6   Q.   So -- I see what you're saying,

7   Dr. ████

8   So your Appendix B is only the

9   documents you relied on. Is that correct?

10   A.   That's my understanding of what

11   Appendix B is meant to reflect.

12   Q.   And so it doesn't reflect all the

13   documents you considered in connection with the

14   preparation of your report, correct?

15   A.   Correct.

16   Q.   So there are documents that you

17   considered that are not included on Exhibit B;

18   is that right?

19   A.   Exhibit B is not intended to be an

20   exhaustive list of every document that I may

21   have looked at, no.

22   Q.   That's not my question.

23   My question was, there are documents

24   that you considered in the preparation of your

25   report that are not included on Exhibit B; is

1

2   that correct?

3   A.   There -- there are documents that I

4   reviewed that may not be listed in Appendix B if

5   I didn't rely on them to form the opinions in

6   this report.

7   Q.   Do you recall any documents that you

8   considered but didn't rely on in connection with

9   the preparation of your report?

10   MR. MOYE: Initial report?

11   MR. FIGEL: Initial report, yes.

12   Thank you.

13   A.   Well, I remember reading a -- a Wells

14   Submission from Ripple Labs.   It's a document

15   that I looked at but I ultimately didn't rely

16   upon in any way to form my opinions.

17   Again, I think that I've looked at

18   some financial statement data, maybe just

19   briefly, but didn't consider myself relying on

20   it to form any of the opinions in my report.

21   That's what comes to mind sitting

22   here.

23   Q.   And you think you may have considered

24   Ripple's 2019 financial statement?

25   A.   I -- I seem to recall looking at

1
2   documents like this. Whether this was

3   particularly one that I ever looked at, I -- I

4   simply can't say.

5   Q.   Could you take a look at page 3 of

6   Exhibit 3, and it bears the Bates number

7   RPLI_SEC 0301117.

8   Can you tell me what --

9   A.   I'm sorry. So it's -- is that page 1

10 that's page 2 and that's page 3?

11   MR. MOYE: No, at the bottom.

12   THE WITNESS: Oh, page 3 on the bottom

13   of the page.

14   Q.   Yes. It's easier if you go by Bates

15 numbers. The one ending in 117.

16   Are you with me?

17   A.   Yes.

18   Q.   Can you tell me what information's

19 reflected on this page.

20   A.   Well, it appears to be some statements

21 of operations for the years ending December 31,

22 2019, 2018. Some information on revenues,

23 costs, with some detail provided.

24   Q.   Let me direct your attention to the

25 two line items under "Revenues."

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1   ████

2   Do you see that?

3   A.   I see "Revenues," yes.

4   Q.   And do you see that under "Revenues"

5   there's XRP transactions and nonmonetary XRP

6   transactions?

7   A.   I see that.

8   Q.   Can you explain the difference between

9   XRP transactions and nonmonetary XRP

10   transactions?

11   MR. MOYE: Objection.   Foundation.

12   A.   Sitting here right now, I'm not

13   exactly sure what they mean by XRP transactions

14   and nonmonetary transactions.

15   Q.   In your opinion, do they both reflect

16   Ripple's sales of XRP?

17   A.   At -- at the moment, I -- I can't say.

18   This is 2019 and 2018.

19   Let me try to do a little quick math

20   in my head, which is always dangerous.

21   Q.   I have a calculator if you'd like one.

22   A.   Well, I -- I -- let's see.   All right,

23   2019.

24   251.   Let's do it this way.

25   22330.

1

2   718.

3   I -- well, maybe with the calculator.

4   I -- I don't -- I don't know if these

5   two numbers sum to be the programmatic sales

6   that are reported in my report.

7   Q.   Do you know what a Hewlett-Packard 12C

8   is?

9   A.   I think so. If you would like me to

10 use it.

11   Q.   If you would like to. I just don't

12 want you to restrict your answer because you

13 don't have a calculator. You said you needed

14 one.

15   A.   Okay. This is old school.

16   All right. So what are we doing?

17   Okay. How do you work your

18 calculator?

19   Let me use -- well, I don't have my

20 phone.

21   Q.   Yeah. Why don't we move on. Yeah,

22 let's do that.

23   A.   So you're asking if -- I suppose

24 you're asking if these numbers correspond to

25 what's in my report. I don't know offhand. If

1   █████

2   that was your question.

3   Q.   It was. Let's -- let me direct your

4   attention now to page 6 of Exhibit 3.

5   First of all, can you tell me what a

6   consolidated statement of cash flows is in a

7   financial statement?

8   A.   Well, it's a statement that summarizes

9   cash flows, generally from operating activities

10   of a company. These would be revenues collected

11   and costs of operation.

12   Q.   What do "cash flows" mean?

13   A.   Well, it can to be on an accrued basis

14   or a collected basis. But these are dollars in

15   and dollars out in the operation of the

16   business.

17   Q.   By "dollars," you mean -- I don't mean

18   greenbacks --

19   A.   I don't mean green slips of paper,

20   but --

21   Q.   Let's not talk over each other.

22   Give me just one second, Dr. ████. I

23   was about to ask you a question.

24   And by "dollars," you don't mean green

25   slips of paper. You mean cash transactions that

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1   ███

2   are recorded in bank and accounting ledgers,

3   correct?

4   A.   Correct. I certainly don't mean green

5   slips of paper handing back and forth.

6   Q.   All right. Now, let me direct your

7   attention to the first line under cash flows

8   from the operating activities.

9   Do you see that?

10   A.   Uh-huh.

11   Q.   And do you see the net income line?

12   A.   Yes.

13   Q.   And do you recognize that as, the

14   ████████, approximately, as the net income

15   amount on page 3?

16   A.   Yes. They're the same number.

17   Q.   Okay. And if you go down the next --

18   the first line under net income is adjustments

19   to reconcile net income to net cash providing

20   by -- provided by operating activities.

21   Do you see that?

22   A.   Uh-huh.

23   Q.   What's your understanding of what that

24   adjustment refers to?

25   A.   Well, generally, you have income

1

2   statements and cash flow statements, balance

3   sheet statements. This might be an adjustment

4   to reconcile an income statement to a cash

5   statement.

6   Q.   What's the difference between income

7   and cash in the context of this item?

8   A.   Well, income statements, you have --

9   income statements are -- reflect the operation

10   of the business, as moneys come in and go out,

11   very often on an accrued basis.

12   Cash statements represent an

13   accounting of final cash balances at the end of

14   the fiscal year. Sometimes those two things may

15   not line up because you might be -- on your

16   income statement, you might be reflecting

17   moneys, for instance, that have been billed but

18   not yet received or costs that have been charged

19   but not yet paid. And so you may have to do a

20   reconciliation to bring them into balance.

21   Q.   Basically an adjustment from noncash

22   to cash items; is that correct?

23   A.   Correct.

24   Q.   And you'll see -- on the first line

25   under that adjustment, you'll see realized and

Page 60

1   ███████

2   unrealized gains on XRP derivatives.

3   Do you see that?

4   A.   I do.

5   Q.   And you see that's a negative

6   ███████████   number?

7   A.   Yes. It appears to be.

8   Q.   And what's your understanding of what

9   the net-income-to-cash adjustment of ███████████

10   for realized and unrealized gains on XRP

11   derivatives relates to?

12   MR. MOYE: Objection. Foundation.

13   A.   Well, I -- I mean, I haven't reviewed

14   these statements in anywhere the sort of detail

15   that we're doing here today.

16   Presumably, Ripple Labs had some

17   derivative position on XRP; and perhaps on a

18   mark-to-market basis, there were gains on losses

19   to those positions. But in -- I have spent

20   essentially -- I spent very little time with

21   these documents. I just don't want to speculate

22   out of turn.

23   Q.   Does it cause you to question the

24   statements in your opening report that Ripple

25   had 1.4 billion of cash sales during the

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1 █████

2 timeframe reflected in your Figure 6?

3   A.   No.   My Figure 6, I think, is based --

4 is simply a restatement of their own market

5 reports.   I'm simply tabulating data from the

6 XRP market reports.

7   Q.   Let me direct your attention now to

8 page 11 of Exhibit 3.

9   A.   Uh-huh.

10   Q.   Are you familiar with notes to

11 financial statements?

12   A.   Generally, yes.

13   Q.   Fair to say that's where an issuer, a

14 company describes some of the line items on

15 their financial statements?

16   A.   Correct.

17   Q.   Before you signed your opening report,

18 did you read the footnote in which Ripple

19 described the difference between XRP

20 transactions, nonmonetary XRP transactions?

21   Do you see that?

22   A.   I see this note.   I had not read this

23 note prior to signing my opening report.

24   Q.   Could you read the sentence under XRP

25 transactions into the record, please?

1

2   A.   XRP transactions revenue consists of

3   sales of XRP for fixed monetary consideration

4   and is recognized upon delivery of XRP to the

5   customer.

6   Q.   What's your understanding of that

7   explanation in the note under XRP transactions?

8   A.   Well, I take it to mean that this --

9   this refers to proceeds collected upon the

10 delivery of XRP to some customer in exchange for

11 money.

12   Q.   And can you read for me the first

13 sentence under nonmonetary XRP transactions?

14   A.   Nonmonetary XRP transactions revenue

15 consists of transactions where the company

16 delivers XRP to customers for consideration

17 other than cash or other monetary consideration

18 and is recognized upon delivery of XRP.

19   Q.   What's your understanding of that

20 sentence?

21   A.   I believe it's describing situations

22 where Ripple delivers XRP tokens in exchange for

23 something other than money.

24   Q.   And do reading these two explanations

25 of the footnote cause you to reconsider the

1

2   statements you made about Ripple's sales of

3   1.4 billion between the first quarter of 2017

4   and the fourth quarter of 2020?

5   A.   By themselves, no.   What I report in

6   Figure 6, the numbers there are taken simply

7   from XRP markets reports.

8   Q.   And you think those are sales of XRP

9   for cash?   Correct?

10   A.   Combination of programmatic sales and

11   over-the-counter sales expressed in a certain

12   value.

13   Q.   And when we talk about cash, I'm using

14   the definition that Ripple used in its notes,

15   fix monetary consideration.

16   So just to be clear, you are not

17   modifying, based on the information I showed

18   you, the statements you made that Ripple sold

19   1.4 -- 42.45 billion in XRP for a fixed monetary

20   consideration.   Correct?

21   MR. MOYE: Objection.   Asked and

22   answered.

23   A.   The value of the XRP that Ripple sold,

24   as reported in their markets reports, represents

25   a certain amount -- a certain value that's put

1 ███

2   on it. If we're now parsing whether that was --

3   whether they received a hundred dollars or

4   whether they received services that they valued

5   at a hundred dollars, that's not a distinction

6   that -- that was important to me in creating

7   Figure 6, which, again, is just a tabulation of

8   data from Ripple's XRP market reports.

9   Q.   So even understanding that some not --

10   withdrawn.

11   Even understanding the large

12   percentage of the sales that you have in

13   Figure 6 were sales for something other than

14   fixed monetary consideration, that doesn't

15   change the relevance of the information in

16   Figure 6 to your study. Correct?

17   MR. MOYE: Same objection.

18   A.   Correct. Figure 6 is simply a

19   tabulation of data from market reports

20   indicating the value of XRP tokens that Ripple

21   released. I -- with this information and --

22   perhaps jogging my memory, it might be that

23   sometimes they collected a hundred dollars in

24   money, and sometimes they collected services

25   worth a hundred dollars. I'm not sure that

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1

2   that's a -- necessarily an important

3   distinction.

4   But in any event, this data is not

5   part of the econometric analysis that I

6   conducted. This is provided simply for

7   informational and background purposes.

8   Q.   Now, you testified earlier, I believe,

9   that you never conducted, other than in this

10   case, an event study involving digital assets.

11   Correct?

12   A.   Correct.

13   Q.   Right. And apart from your work in

14   this case, do you know of any event study

15   involving a digital asset that's been used to

16   support the argument that a digital asset is a

17   security?

18   A.   To support -- well, the -- generally,

19   that sounds like a -- a legal issue, whether

20   something is a security or not.

21   I'm personally not aware of other

22   legal proceedings, but I -- I wouldn't

23   necessarily be aware of other legal proceedings.

24   Q.   Well, do you know of anyone else,

25   other than you, that's conducted an event study

1

2   involving a digital asset for the purpose of

3   demonstrating that the digital asset was a

4   security?

5   A.   Well, I don't even know that I've done

6   what you just said. I conducted an event study

7   for the purpose of determining whether there is

8   a connection between Ripple Labs and the XRP

9   market, and I found that there is. That's

10   the -- the -- that's my analysis and that's my

11   opinion.

12   Q.   So --

13   A.   How that relates to a legal question

14   is not for me to say.

15   Q.   So as far as you know, the event study

16   that you conducted is not relevant to the

17   question of whether XRP is a security. Correct?

18   MR. MOYE: Objection. Argumentative.

19   A.   That's certainly not what I said.

20   Q.   Well, let me ask you the question. In

21   your mind, is the event study that you conducted

22   as reflected in your report, in Exhibit 1,

23   relevant to the question of whether XRP is a

24   security?

25   A.   I -- I -- you seem to be asking me for

1

2   my legal opinion, which I'm fully -- which I'm

3   not qualified to -- to offer. I'm not offering

4   any legal opinions.

5   I was engaged by the SEC to conduct an

6   analysis, and I conducted the analysis to the

7   very best of my ability.

8   Q.   Dr.   I'm asking you for your

9   opinion, as an economist, as to whether you

10   believe the event study that you prepared is

11   relevant to the question of whether XRP is a

12   security.

13   A.   As an economist opining on a legal

14   question? I'm not sure I -- I -- I understand

15   your question.

16   Q.   So I take it you don't have an

17   opinion?

18   A.   The question of whether Ripple Labs

19   impacted the XRP market is -- as far as I

20   understand, was in dispute. I was asked to

21   conduct an analysis, and I conducted an analysis

22   and prepared my opinions and wrote a report

23   about them.

24   Q.   Let's go back to precedents of using

25   an event study for the purpose of supporting an

1   ███

2 argument that a digital asset is a security.

3   Are you with me? I'm ask-- the

4 question I'm asking is, are you aware of anyone

5 else who's ever done an event study for the

6 purpose of demonstrating that a digital asset is

7 a security.

8   MR. MOYE: Objection. Asked and

9   answered.

10   A.   Again, as I've -- as I've tried to

11 explain, the question of whether it is or is not

12 a security is a legal question.

13   An event study is not going to answer

14 a legal question. It may provide information

15 which might be useful to the finder of fact

16 who's ultimately going to settle the legal

17 question. But an event study is not a legal

18 test.

19   Q.   Are you aware of any academic

20 literature that supports the use of an event

21 study to demonstrate that a digital asset is a

22 security?

23   A.   No, I'm not aware of any academic

24 literature on that point. That's again, a --

25 generally a legal question, and I would be --

1   ███

2   it's a -- it's ultimately a legal question.

3   Q.   So I may be able to save everybody in

4   the room a little bit of time then, Dr. ███

5   So fair to say that all of the academic

6   publications that you cite in your report, in

7   your mind, do not support the use of an event

8   study to support an argument that a digital

9   asset is a security. Correct?

10   MR. MOYE: Objection. Argumentative.

11   A.   With respect to that -- I -- I need to

12   hear that back. That was very convoluted.

13   Q.   Let me -- give me just a second.

14   You agree that none of the academic

15   literature cited in your report, either report,

16   endorses the use of an event study to support an

17   argument that a digital asset is a security.

18   Correct?

19   A.   The academic literature applies the

20   event study methodology to the digital token

21   markets, including the XRP market.

22   Those event studies resolved around

23   the question of whether a set of events was

24   associated with an increase in -- in digital

25   token -- and sometimes decrease, in digital

1   ███

2   token prices.

3   I applied that well-accepted,

4   peer-reviewed methodology to the matter at hand,

5   as I was asked to investigate a question by the

6   SEC.

7   MR. FIGEL: We've been going about an

8   hour and 20 minutes. I'm happy to keep

9   going, but if you'd like to take a short

10   break, I'm happy to do that, too.

11   MR. MOYE: Why don't we take a short

12   break.

13   MR. FIGEL: Yeah.

14   THE VIDEOGRAPHER: We're going off the

15   record at 10:40 a.m.

16   (A recess was taken from 10:40 to

17   10:59.)

18   THE VIDEOGRAPHER: We're back on the

19   record at 10:59 a.m.

20   Q.   Dr. ████ before we broke, you made an

21   observation about the academic literature that

22   you relied on.

23   Apart from your work in this case, are

24   you aware of any event study that's been used to

25   evaluate whether news events published by a

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1

2   company had an impact on the market price of a

3   digital asset?

4   A.   Whether -- whether news events -- I'm

5   sorry, just one more time?

6   Q.   Sure.

7   Apart from your work in this case, are

8   you aware of any event study that's been used to

9   evaluate whether news events published by a

10   company had an impact on the market price of a

11   digital asset?

12   A.   Yes.

13   Q.   What study is that?

14   A.   The -- the Joo, et al. study. I

15   believe -- and maybe it's the Gerritsen. I

16   might be confusing them.

17   But one of those studies, in its set

18   of events for XRP, included -- perhaps among

19   other things, but I remember that it included

20   the BitLicense being awarded to Ripple.

21   There may be other examples, but that

22   one comes to mind.

23   Q.   And you consider the BitLicense being

24   issued to Ripple to be a news event published by

25   a company?

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1

2   A.   Well, Ripple published -- published

3   that event. Other people may have also, but

4   Ripple certainly announced the event.

5   Q.   Well, that would -- that would

6   identify a correlation between the award of a

7   BitLicense and the market -- the impact on

8   market price. Correct?

9   A.   Correct.

10   Q.   And the Joo study that you refer to

11   didn't identify the source of the publication of

12   the award of the BitLicense, correct?

13   A.   It probably wasn't pertinent to them.

14   Q.   But you're --

15   A.   Sorry, go ahead.

16   Q.   My question is, are you aware of an

17   event study that sought to evaluate the impact

18   on the market price of a digital asset from a

19   news event announced by a specific company?

20   A.   They may have sourced the news event

21   from Ripple's own announcement. I don't know

22   where they sourced the news event. I don't see

23   what difference it would make.

24   Q.   You don't see a difference --

25   A.   No.

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1

2   Q.   Let me finish.

3   A.   Sorry.

4   Q.   Thank.

5   You don't see a difference between --

6   a correlation between the fact of an event and

7   a -- and a market price of a digital asset and

8   an announcement by a company on the digital

9   price of a -- on the market price of a digital

10   asset?

11   A.   You're parsing distinctions that I

12   just don't follow.

13   An event that is unannounced and

14   unknown presumably will not have any impact.

15   Therefore, whenever we talk about the impact of

16   an event, we are really invariably talking about

17   the impact of the announcement of the event.

18   And that is -- that's just one that I

19   happen to remember. There may be others, I --

20   but that's just one that happens to come to mind

21   of an event that was announced by Ripple -- may

22   have also been announced by other people -- that

23   was included in an event study in peer-reviewed

24   academic literature on the XRP market.

25   Q.   I want to make sure I understand your

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1   ███

2   answer, Dr. ███

3   And let -- bear with me for a second.

4   Let's take the BitLicense event that you

5   identified.

6   A.   Uh-huh.

7   Q.   As I understand the Joo and -- I

8   believe it's Nishikaw and others study, one of

9   the things they looked at was a correlation

10   between the award of the BitLicense and the

11   market price of digital assets. Correct?

12   A.   Just to be clear, I don't remember if

13   it was the Joo study or the Gerritsen study.

14   I -- I -- I might be conflating the two.

15   So I don't know if we want to keep

16   referring to it as the Joo study. May have

17   been.

18   But one of those two studies had a set

19   of events that it considered relevant to XRP,

20   and the BitLicense was among those events.

21   Q.   Correct. But in your mind, it doesn't

22   matter, when you're measuring market impact of

23   an event, whether the event is announced by one

24   source or 50 source. Correct?

25   A.   Generally -- and -- and with the

1

2   caveat that one can -- with any rule, one might

3   be able to think of an exception, but as a

4   general proposition, no, it doesn't matter to me

5   whether it was announced by one or several.

6   Q.   Did the events that you used in your

7   event study as reflected in Exhibit 1 make a

8   distinction between whether the event was

9   announced by one source or by multiple sources?

10   A.   That is not a distinction that I drew

11   in my analysis. Nor is it a distinction that --

12   no, it was not a distinction that I drew in my

13   analysis.

14   Q.   All right. Could we go to Exhibit 1,

15   please. Paragraph 30.

16   A.   Yes.

17   Q.   Could you read for me the first

18   sentence in paragraph 30.

19   A.   In the matter at hand, I understand

20   that the XRP token is not a claim on the assets

21   or earnings of Ripple Labs, and that Ripple Labs

22   maintains that market participants do not view

23   Ripple Labs' efforts as relevant to the XRP

24   market price.

25   Q.   Are you aware of an event study that

1

2   sought to determine whether news events about a

3   company had an impact on the market price of an

4   asset that did not have a claim on the assets or

5   earnings of the company?

6   A.   Yes. I -- the same study that we've

7   been discussing, whether that's Gerritsen or

8   Joo.

9   Q.   All right. Other than that study, are

10   you aware of any other event study that sought

11   to determine whether news events about a company

12   had an impact on the market price of an asset

13   that did not have a claim on the assets earnings

14   of the company?

15   A.   I don't have the -- the list of events

16   from those studies memorized. There may have

17   been other events of that type. Offhand,

18   sitting higher today, I can't think of another

19   event study in the digital token market that did

20   that, but I haven't done an exhaustive search on

21   that question.

22   Q.   Can you take a look at paragraph 46,

23   please.

24   A.   Uh-huh.

25   Q.   Could you read into the record,

1

2   please, the second sentence in paragraph 46.

3   A.   The question, therefore, is not

4   whether a particular Ripple action or event is

5   associated with a particular XRP price response,

6   as is the case in many event study disputes, but

7   instead whether Ripple actions or events are

8   collectively associated with significant XRP

9   price reactions.

10   Q.   And what are the disputes you're

11   referring to when you use the phrase "many event

12   study disputes"?

13   A.   What I had in mind when I wrote that

14   was, other litigation contexts which, in my

15   experience, often focus around a particular

16   event. For example, a corrective disclosure of

17   earnings and the impact that that may or may not

18   have had on the stock price.

19   Q.   And you say the question in this case

20   is whether Ripple action or events are

21   collectively associated with significant XRP

22   price reactions.

23   Do you see that?

24   A.   Yes.

25   Q.   What do you mean by "collectively

1

2   associated"?

3   A.   I'm testing a -- I'm testing whether

4   there is a correlation or association between

5   Ripple Labs and some of its events or actions

6   and XRP prices.

7   Q.   And what do you -- what's the

8   definition of "collective association" or

9   "collectively associated"?

10   A.   I would think of that in the context

11   of a joint test of significance, testing whether

12   a set is jointly significant as opposed to

13   looking at any one event.

14   Q.   And is -- can we call that collective

15   association? Is that a fair description of what

16   you just described?

17   A.   That's what was in my mind when I

18   wrote the words. It's -- a more rigorous

19   statistical discussion would probably speak in

20   terms of joint significance, but I'm happy to

21   use the language that's here.

22   Q.   Is collective association a term of

23   art in econometrics?

24   A.   Not especially, as I just described.

25   What I meant there was the sort of joint

1

2   significance. That would be in a more -- in an

3   academic paper, we would probably speak about

4   whether the set of events was jointly

5   significant.

6   I meant the phrase in that spirit.

7   Q.   So the record is clear, let's just

8   make sure we have an agreement on the term. Do

9   you want to use "joint significance" or

10   "collective association"?

11   A.   I suppose with the formality of these

12   proceedings, maybe we should speak about joint

13   significance.

14   Q.   Are you aware of any peer-reviewed

15   articles that assess whether many events,

16   jointly have significance with a significant

17   price impact on a digital asset?

18   A.   Yes.

19   Q.   Which ones?

20   A.   Papers that I've referred to in my

21   report, Gerritsen and Joo. That's -- they both

22   do that. They have a set of events, and they

23   test whether that set of events is jointly --

24   that set of events is jointly significant.

25   Q.   Other than the articles that you cite

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1

2   in your two reports, are you aware of any other

3   academic literature that you rely on to support

4   your claim that there are other event studies

5   that collectively -- that measure whether there

6   are collective events associated with

7   significant market impact on digital assets?

8   A.   The -- the event study -- the academic

9   peer-reviewed event studies that I rely on are

10   the ones that I cite in my report and include in

11   my list of documents relied upon.

12   Q.   You're not aware of any others?

13   A.   Sitting here today, I -- no. Those

14   are the ones that I recall.

15   Q.   All right. In this case, you

16   initially identified 514 news events. Is that

17   correct?

18   A.   That -- that sounds correct.

19   I'm sure I say that somewhere. But

20   that sounds correct.

21   Sorry. I'm just -- yes, 514 events,

22   from paragraph 49.

23   Q.   And you only tested 105 of those

24   events; is that correct?

25   A.   No, no, that's not correct.

1   ███

2   Q.   Let's go to paragraph 98.

3   A.   Uh-huh.

4   Q.   Well, maybe I should give you a chance

5   to explain.

6   Let me rephrase my question. You only

7   tested events occurring on 105 days. Correct?

8   A.   No, that's not correct.

9   Q.   How many event days did you test in

10   your methodology?

11   A.   In total, I don't know the number

12   offhand. But what you're -- if I, maybe some

13   assistance.

14   Q.   Feel free.

15   A.   You're missing the other categories

16   that I discuss previously, for instance, office

17   and staff announcements, the noncommercial XRP

18   initiative announcements. That's -- that would

19   need to be added to the 105, to get the total

20   number of days that I ever tested.

21   Q.   Didn't you effectively exclude the

22   office and staff announcements in the

23   noncommercial XRP events --

24   A.   I tested them. Sorry. I don't mean

25   to speak over you. I apologize.

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1   ▮

2   Q.   And you found no correlation, correct?

3   Or no statistically significant correlation?

4   A.   That's correct.

5   Q.   So you can't look to those events to

6   support an opinion that actions by Ripple Labs

7   had a statistically significant impact on the

8   market price of XRP. Correct?

9   A.   Those events do not -- those events do

10 not provide statistical evidence of an

11 association between Ripple Labs and XRP prices.

12 I agree.

13   And I'm sorry. I'm really not trying

14 to be difficult, but your question was how many

15 I had tested. I just wanted to be clear that I

16 tested more than this final set here.

17   Q.   So how many event days did you test in

18 your regression analysis?

19   A.   Again, I -- I don't have the -- the

20 total offhand. There -- I -- but 105-plus

21 unique days in -- among the sets of news

22 categories that we've just discussed, which

23 was -- on the -- I mean, 20, another 20, another

24 30. I don't know.

25   There may be some overlap in days. I

1

2   don't know.

3   But 105-plus.

4   Q.   The aspect of the study that you're --

5   you conducted, that's described in paragraph 98,

6   which is a combination of the categories for

7   which you found statistical significance, was

8   limited to 113 unique relevant events on 105

9   days. Correct?

10   A.   Almost correct. Section F is based on

11   113 unique events on 105 days.

12   What I'm -- just want to make sure

13   we're clear on is you said, categories for which

14   I found significant correlation. I believe that

15   was part of your question.

16   And this set of 113 events on 105 days

17   includes a category called acquisition and

18   investments, which in isolation, I do not find a

19   statistically significant correlation.

20   So it's not a combination of subsets,

21   each of which by themselves produced a

22   correlation. Most of them did. One of them in

23   isolation did not. I put them all together, and

24   in Section F studied that superset of 113 events

25   on 105 days.

1

2   Q.   And this is the portion of your event

3   study that you primarily rely on to support your

4   observations about whether there is a collective

5   association between actions by Ripple and a

6   market impact on XRP. Correct?

7   A.   Well, I -- I'm not sure about your use

8   of the word "primarily."

9   It is -- it is a set on which I do a

10   great deal of testing and robustness testing,

11   and it is certainly part of my opinion that

12   there is an association between Ripple Labs and

13   XRP prices.

14   Q.   And that combination, reflects a

15   reduction from the 14 categories that you

16   initially identified as important events,

17   correct?

18   A.   I wouldn't characterize it that way.

19   I did not identify them as important events.

20   Those were news found in -- among Ripple Labs'

21   curated news sources.

22   So whether I had an opinion that they

23   were important or not is not how that set was

24   formed.

25   Q.   Didn't you select -- withdrawn.

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1

2   Let's just talk about your methodology

3   so the record is clear.

4   A.   Sure.

5   Q.   You started off, with respect to your

6   effort to identify events, by pulling events

7   that were reported by Ripple on its website and

8   in other publications of Ripple, sponsored.

9   Correct?

10   A.   Taking all of them. Yes. Right.

11   Q.   And you assumed that Ripple would not

12   have put them on there unless Ripple thought

13   that they were important. Correct?

14   A.   I assumed that Ripple Labs would

15   presumably have some basis for identifying some

16   things and not other things, yes.

17   Q.   And that yielded an initial selection

18   of almost 700 news events, correct?

19   A.   700 articles, yes.

20   Q.   And you then, with some adjustments,

21   categorized all of those events into 14

22   categories. Correct?

23   A.   Yes. That is correct.

24   Q.   And then with respect to the aspect of

25   your study that's reported or that you describe

Page 86

1

2   in paragraph 98, you excluded 9 of those 14

3   categories. Correct?

4   A.   I just want to refresh.

5   Q.   I think that's right, 14 minus 5 is 9,

6   I believe.

7   A.   The analysis in Section F is based on

8   five and, therefore, not based on nine, that's

9   correct.

10   Q.   So for the study that you did in

11   paragraph 98 --

12   A.   Yeah.

13   Q.   -- you excluded nine categories --

14   A.   Yes.

15   Q.   -- correct?

16   A.   That sounds right.

17   Q.   And in those nine categories were

18   approximately 400 Ripple news events, correct?

19   A.   That's -- that sounds correct.

20   Q.   Are you aware of any academic studies

21   that support the exercise of subjective judgment

22   that reduces the number of events studied by

23   more than 80 percent?

24   A.   Of course.

25   Q.   And tell me why -- what you mean by

Page 87

1   █████

2   "of course."

3   A.   I mean, I'm tempted to say

4   "obviously."

5   Well, many event studies can be

6   conducted on a single event and, therefore, are

7   not considering dozens or hundreds or maybe

8   thousands of other events.

9   It -- a -- a routine part of the event

10   study methodology is the selection of events.

11   That's how an event study methodology begins, is

12   with a selection of events.

13   Q.   Would the results of your test of

14   collective events be different if you tested or

15   included all of the 514 news events in all of

16   the 14 categories that you initially identified?

17   MR. MOYE: Objection.   Calls for

18   speculation.

19   A.   I -- I don't know the answer.   It's

20   not -- it's not pertinent to my opinions what

21   the answer to that question is.

22   I don't believe I ever tested all

23   events because it just wasn't -- it wasn't a

24   relevant or pertinent exercise to undertake.

25   Q.   Would you agree with this statement

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1 ▮

2 that mathematically, a set of events is more

3 likely to be jointly significant than individual

4 events? Correct?

5   Well, why don't I rephrase that.

6   A.   Yeah, please.

7   Q.   Mathematically, a set of events is

8 more likely to be jointly significant than an

9 individual event. Correct?

10   A.   I -- I apologize. The question just

11 doesn't really make a great deal of sense to me.

12 A single event is a single event. A set of -- a

13 set of events, you can test the joint

14 significance of a set of events.

15   By definition, you cannot test the

16 joint significance of a single event. So I --

17 I'm just struggling with the question.

18   Q.   Well, let's make it probabilistic. In

19 what circumstance are you more likely to find a

20 statistically significant correlation, randomly

21 picking one of your 514 news events from Ripple

22 and testing whether that event had a

23 statistically significant market impact, or

24 testing a larger number of Ripple events, to

25 test whether it has a statistically significant

1 ▮

2   market impact? And by "market impact," I mean

3   on XRP.

4   A.   I -- I simply cannot engage with that

5   question. I don't understand it.

6   I'm sorry. I don't understand it.

7   Q.   You don't think your odds of finding a

8   statistically significant correlation is greater

9   if you pick 105 news events than if you pick a

10 single one?

11   A.   Absolutely not. There's no reason to

12 believe that it is.

13   Q.   All right. Let me show you what we'll

14 mark as -- apologies. Where are we?

15   MR. MASTERMAN: 4.

16   MR. FIGEL: Thanks. Tab 4, and that's

17   the "Litigation Services Handbook, The Role

18   of a Financial Expert."

19   (Litigation Services Handbook, The

20   Role of a Financial Expert, was marked

21   Exhibit 4 for identification, as of this

22   date.)

23   Q.   Are you familiar with this document,

24 Dr. ▮

25   A.   I don't think so.

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1

2   MR. MOYE: Can you clarify whether

3   you're talking about the entire handbook or

4   just the section you've got here?

5   MR. FIGEL: Fair question.

6   Q.   Why don't we start with the caption,

7 which is "Litigation Services Handbook." Are

8 you familiar with that publication?

9   A.   I think I've heard of it.

10   Q.   What context?

11   A.   I don't know. Discussions.

12   Q.   Would you agree this is a widely

13 accepted handbook that discusses the application

14 of economics and econometrics to litigation?

15   MR. MOYE: Objection. Foundation.

16   A.   I -- I don't know that I'm in a

17 position to characterize it that way. It may

18 be.

19   Q.   You don't know one way or the other?

20   A.   No.

21   Q.   All right. If you could -- the page

22 number's a little awkward here, but if you go to

23 the upper left-hand corner, you'll see something

24 that looks like 19 Bullet Point 2.

25   A.   Uh-huh.

1

2   Q.   And there's a section that says a

3   romanette a, "Overview of the Event Study

4   Technique."

5   Do you see that?

6   A.   Uh-huh.

7   Q.   Can you read the first sentence into

8   the record for us.

9   A.   Event studies of the type used in

10   litigation rely on two well-accepted principles.

11   First, the semi-strong version of the efficient

12   market hypothesis, which states that stock

13   prices in an actively traded security reflect

14   all publicly available information and respond

15   quickly to new information.

16   Second, the price of an efficiently

17   traded stock is equal to the present value of

18   the discounted future stream, a free cash flow.

19   Q.   Do you agree with the statement in the

20   Litigation Services Handbook that, Event studies

21   used in litigation should be based on a finding

22   of the existence of the semi-strong version of

23   the efficient market hypothesis?

24   A.   As an absolute rule? No, I don't

25   agree.

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1

2   Q.   Why not?

3   A.   I think it depends very much on the

4   context and the question being addressed.

5   I -- I would not be surprised that in

6   many contexts, that assumption is necessary.

7   But I don't think that in all contexts

8   that assumption is necessary.

9   Q.   Do you believe that assumption is

10   necessary with respect to an event study that

11   seeks to prove the correlation between press

12   announcements by Ripple Labs and impact on the

13   market price of XRP?

14   A.   Sorry, could you repeat the question?

15   Q.   Do you believe that assumption, i.e.,

16   that you need a semi-strong version of the

17   efficient market hypothesis, is necessary to

18   identify, with reliability, the correlation

19   between press announcements by Ripple Labs and

20   any impact on the market price of XRP?

21   MR. MOYE: Objection. Compound.

22   A.   May I restate the question back just

23   to make sure I understood it?

24   Q.   Well, why don't -- yes, go ahead.

25   A.   You're asking do I believe that the

1

2   market must be -- or we must -- we must assume

3   semi-strong efficiency to identify the

4   correlation between set of events and an impact

5   on market prices? Is that the question?

6   Q.   No, it's broader than my question. So

7   I'll withdraw my question and try again.

8   Do you believe you need to have

9   evidence of a semi-strong efficient market in

10   order to conduct the event study that you

11   conducted in this case?

12   A.   No.

13   Q.   Why not?

14   A.   Well, again, following the accepted

15   methodology and peer-reviewed literature, we

16   don't need the semi-strong hypothesis to hold to

17   conduct the event study of the type that I did.

18   Q.   But you agree that the semi-strong

19   version of the efficient market hypothesis is

20   not present with respect to the market for XRP.

21   Correct?

22   A.   Yes. I discussed this at length in my

23   report. The received evidence and the economic

24   literature, consistent with my own analysis, is

25   that the XRP digital token market was likely not

1

2 semi-strong efficient during the period of

3 interest.

4   Q.   So if the Litigation Services Handbook

5 is correct that you need a semi-strong version

6 of the efficient market hypothesis to do an

7 event study of this nature, then the conclusions

8 of your event study would not be reliable,

9 correct?

10   A.   You've -- you've put together a lot of

11 things in that question.

12   The semi-strong efficient hypothesis

13 is necessary to draw certain inferences from an

14 event study.

15   Those are not the inferences that I'm

16 drawing from my event study. They're not the

17 inferences that the Joo article draws from its

18 event study or Gerritsen or any other article.

19   If, if you conduct an event study, and

20 you find that there is no statistically

21 significant reaction in price following an

22 event -- so let's just -- let's just have an

23 example to fix ideas.

24   XYZ Enterprises issues a corrective

25 disclosure on January 1, and the question is,

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1 ████

2   Well, did that corrective disclosure cause the

3   stock price to drop. Or change.

4   You conduct an event study, and you

5   find no statistical evidence that stock prices

6   moved in the statistically significant way

7   following January 1.

8   Okay?

9   Question is what inference do you draw

10   from that lack of movement. If you want to say,

11   Well, because the price did not move, therefore,

12   the corrective disclosure was not important, if

13   you want to draw that inference from that

14   statistical result, you can only draw that

15   inference if you've established semi-strong

16   efficiency of the market.

17   Because otherwise, you're left

18   wondering, Well, perhaps the stock price simply

19   hasn't moved yet, perhaps we need to wait,

20   perhaps it will move next week.

21   The semi-strong efficient hypothesis

22   allows you to draw an inference from an absence

23   of movement.

24   I am not drawing inferences from the

25   absence of movement in this case, as the

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1 ▮▮▮

2   peer-reviewed academic literature that applies

3   my event study methodology to markets, including

4   XRP, are not drawing inferences of that type.

5   So, that hypothesis, while necessary

6   in many contexts, is not necessary for the

7   purposes of the analysis that I'm conducting

8   here.

9   Q.   Dr. ▮▮▮ how do you know, if you

10   don't have a efficient market, that the price

11   impact that's reflected and that you are

12   correlating isn't due to an event -- another

13   event that predated the event you're measuring?

14   A.   That's a very good question. And in

15   my opinion, one has to conduct some robustness

16   checks to reject that possibility. So, for

17   example, I conducted an analysis to see if there

18   was any correlation between events and price

19   movements three days before the announcement.

20   And I found across all of my models that there

21   was no correlation.

22   I've -- I've conducted robustness

23   checks on the length of the event window that I

24   considered. The report focuses on three days.

25   But I also conducted a robustness check on one

1

2   day and as long as seven days.

3   So, taken all together, it seems clear

4   to me that the prices were not moving before

5   this news was released, and yet began to move

6   even in a few hours of the news being released,

7   which is why I'm comfortable with the

8   conclusions and opinions that I've offered.

9   This, again, is consistent with the

10   accepted methodologies that you'll find in the

11   literature.

12   Q.   What was the data that you relied on

13   to support the statement you just made that you

14   observed a statistically significant market

15   impact on XRP within hours of a news event?

16   A.   It's -- it would be in, I think,

17   Appendix E of my report, if we can flip there.

18   I don't remember exactly -- I don't remember the

19   table number. But if you allow me to flip

20   through it, I'll point you to it.

21   I have a lot of appendices there. So

22   I just need to -- I just need to find it.

23   (Witness reviewing document.)

24   A.   I'm getting my pages confused. Hang

25   on one second.

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1 ██

2   Q.   Do you want to take a break and

3   collect your thoughts?

4   A.   No, no. It will just take a second.

5   I'm just -- I'm turning the pages, and I just

6   don't want to get everything out of order.

7   I'm getting there. Too many tables.

8   That's the three days early.

9   Here it is. Page 15 of Appendix E.

10   This is the significance of the

11   correlation between --

12   Q.   Give me just a second. I want to make

13   sure I am with you. I'm sorry. You said

14   page 15 of Appendix E?

15   A.   Page 15 of Appendix E.

16   Q.   Okay.

17   A.   So that's the significance of

18   correlation between XRP price increases and

19   announcements in a one-day event window. That

20   means we're comparing -- so, again, suppose the

21   news comes out on January 1. We're comparing

22   the price at the end of the day on January 1,

23   with the price at the end of the day on

24   December 31, meaning with the news released at

25   some point in between, the markets had a few

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1

2   hours to react to the event.

3   Q.   Well, how do you know -- what data do

4   you have to support the claim that the markets

5   reacted within a few hours?

6   24 hours is the most you can say;

7   isn't that right?

8   A.   Well, no. The news is -- 24 hours is

9   the longest it could be; one minute is the

10   shortest it could be. So, presumably, we're

11   talking about some time period in the interval

12   between one minute and 24 hours.

13   Q.   Did you have data that allowed you to

14   measure the time between the release of the

15   press release and the market impact?

16   A.   Yes, because when we review the time

17   stamps on our events, there is a UTC hour and

18   minute.

19   Q.   And what about the price data?

20   A.   The price data is taken at the end of

21   the day UTC time.

22   Q.   So it's somewhere between 24 hours --

23   A.   And one minute.

24   Q.   -- and one minute. But you can't say

25   more specifically --

1   ███

2   A.   I could. I mean, I'd have to go --

3   Q.   Let me finish my question, please,

4   Dr. ███

5   You can't say more specifically than

6   you believe you observed a price impact between

7   the release of event and the market price, other

8   than somewhere within one minute and 24 hours.

9   Correct?

10   A.   Well, if this -- I could, because we

11   have the time stamps on the articles. So we

12   could go article by article, and we could

13   calculate the elapsed time between the

14   publication of that article and the -- and the

15   close of the day.

16   Q.   Did you do that study, Dr. ███

17   I know you -- I know you say you

18   could. My question is, did you do it?

19   A.   No, I did not do that.

20   Q.   You don't have a basis to say that the

21   observed price impact on the market for XRP

22   occurred within hours of a news event unless you

23   mean within 24 hours, correct?

24   A.   No, that's not correct. Of course, I

25   have a basis for that, I looked at those UTC

1

2 times, they were not all 12:01 a.m. of day.

3   Many of them were in the afternoon;

4 some were in the morning. So, yes, I have a

5 basis to know that in many cases, the close of

6 the day is just within a few hours of the

7 publication of the news.

8   Q.   Did you control for number of minutes

9 or number of hours between release of an event

10 and an observed price impact?

11   A.   That is not a control variable in

12 these regressions, no.

13   Q.   So if I understand your testimony,

14 you're contending that your study with the

15 one-day event window is sufficient to overcome

16 the absence of an efficient market. Correct?

17   A.   No, that's not my testimony.

18   Q.   Well, are you contending that the fact

19 that you used a one-day event window in some of

20 your robustness studies is sufficient to remove

21 any reliability issues from the fact that XRP

22 does not trade in a weak form or semi-strong

23 form efficient market?

24   A.   No, that was not my testimony either.

25   Q.   Let's be clear about it.

1

2   What, if anything, are you saying

3   about the fact that you conducted a one-day

4   event -- a one-day event window, and the absence

5   of what you concede is the lack of an efficient

6   market for XRP?

7   A.   I pointed to a number of robustness

8   tests and studies that I did as part of my

9   research. So one possible view, which as a

10   logical matter cannot be precluded a priori, is

11   that when we see price reactions on these days,

12   it might possibly be due to something that

13   happened before the event in question. If the

14   market is not semi-strong efficient, one cannot

15   say in principle that that's impossible. It

16   could be true.

17   So to test that hypothesis, I

18   looked -- I looked at the question. I said,

19   well, were prices -- is there a correlation

20   between the news and price movements in the days

21   leading up to the news?

22   And answer was no. In addition to

23   that, I looked at a very short window, a one-day

24   horizon, which in many cases is only allowing a

25   few hours of response. And I found a

1

2   correlation that was yes.

3   This plus the other work that I did

4   allows me to reach the opinion that what we are

5   seeing in the prices is due to events on the day

6   in question and not due to events prior to that

7   or after that.

8   Q.   And my question is, you believe that

9   that methodology that you just described allows

10   you to reach a reliable conclusion conceding

11   that XRP does not trade in an efficient market.

12   Correct?

13   A.   Correct. Because the methodology that

14   I'm applying, again, is found -- it's

15   well-accepted methodology found in the

16   literature where the -- where the -- academics

17   studying a different set of events, but

18   essentially investigating a similar question,

19   asking does this set of events move XRP prices,

20   those studies acknowledge the relative

21   inefficiency of this market, they apply the

22   methodology, and they reach their inclusions.

23   Q.   Just so the record is clear, you're

24   not contending that the -- that proof of an

25   efficient market is necessary for you to reach

1

2   those conclusions, correct?

3   MR. MOYE: Objection. Asked and

4   answered.

5   A.   I -- as I've testified my report

6   acknowledges that this market is almost

7   certainly not as informationally efficient as

8   the stock market. Academic studies acknowledge

9   the same thing. They then proceed to apply a

10   methodology, which I apply to the matter at

11   hand. They apply it to the XRP market as I

12   apply it to the XRP market. And the inferences

13   that we draw are perfectly valid, even in the

14   absence of semi-strong market efficiency.

15   Q.   All right. If we could now go to

16   Tab 5, which is the binder article that you cite

17   in your report.

18   MR. MOYE: Are you marking a new

19   Exhibit 5?

20   MR. FIGEL: Yes. Yes. I think we're

21   up to 5.

22   (Academic Paper titled "The Event

23   Study Methodology Since 1969" was marked

24   Exhibit 5 for identification, as of this

25   date.)

1

2   Q.   You're familiar with this academic

3   paper, correct?

4   A.   I am.

5   Q.   And you cite it in your report?

6   A.   Uh-huh.

7   MR. MOYE: You have to say yes or no.

8   A.   Yes.

9   Q.   If you could read into the record the

10   portion of this article beginning at the -- near

11   the bottom of the first full paragraph under

12   "introduction," beginning with "event study" and

13   ending with "securities holders."

14   A.   I'm sorry.   The -- in the second

15   paragraph below --

16   Q.   The first -- well, the first -- I'm

17   sorry.   Second -- yeah, there is a paragraph

18   there.   The second paragraph under

19   "introduction."   Right after Footnote 1, just

20   read the -- the sentences to the end of the

21   paragraph, beginning with "event study."

22   A.   The event study methodology has, in

23   fact, become the standard method of measuring

24   security price reaction to some announcement or

25   event.

1   ███

2   Want me to continue reading?

3   Q.   Yes.   Continue to the end the

4   paragraph, if you would.

5   A.   In practice, event studies have been

6   used for two major reasons: To test the null

7   hypothesis that the market efficiently

8   incorporates information (See Fama 1991 for a

9   summary of this evidence); and, two, under the

10   maintained hypothesis of market efficiency, at

11   least with respect to publicly available

12   information, to examine the impact of some event

13   on the wealth of the firm's security holders.

14   Q.   All right. And what's your

15   understanding of what Binder says is the first

16   reason for conducting an event study?

17   A.   So the -- the event study, meaning

18   the -- the statistical analysis of regression

19   and the interpretation of the results, can be

20   used to test whether prices adjust quickly to

21   certain announcements such as earnings

22   announcements.

23   That can be part of an investigation

24   into whether or not a particular market is

25   efficient.

1   ████████

2   Q.   And you didn't do that study in

3   connection with the opinions expressed in your

4   two reports in this case. Correct?

5   A.   I didn't -- I didn't conduct that

6   particular study, no.

7   Of course, I reviewed the academic

8   literature on efficiency and digital token

9   markets. And I did conduct another type of

10   econometric test of efficiency to satisfy myself

11   that I agreed with those academic results.

12   But I didn't conduct precisely the

13   test that's described in this first point here.

14   Q.   And the point of that test is to

15   determine whether the market is efficient.

16   Correct?

17   A.   As described here, yes, that -- that

18   could be a use of the event study methodology.

19   Q.   And you didn't do that because we are

20   in agreement that the market for XRP is not

21   efficient. Correct?

22   A.   It is certainly -- or I say

23   "certainly." There's a significant amount of

24   evidence that this market is less

25   informationally efficient than, say, the U.S.

1

2   stock market. I don't dispute that.

3   Q.   And you just gave us a long exegesis

4   on all the reasons why you thought that proof of

5   an efficient market was not necessary in order

6   for you to reach a reliable conclusion, correct?

7   MR. MOYE: Are you describing his

8   prior -- his prior answers? When you say

9   long exegesis?

10   MR. FIGEL: Yes, that's what I mean.

11   MR. MOYE: Thanks.

12   A.   You're asking me whether it's correct

13   that it's been a long exegesis, or --

14   Q.   I think that's undisputed.

15   No, I'm asking you whether the

16   takeaway from your long answers was that you did

17   not believe that it was a prerequisite to the

18   reliability of the opinions you're expressing

19   that XRP traded in an efficient market, correct?

20   A.   Sure, right.

21   Consistent with the peer-reviewed

22   academic literature, that's correct.

23   Q.   All right. And then going on back to

24   Mr. Binder, you'll see he says that the second

25   reason for using an event study assumes, in his

1

2   words, the maintained hypothesis of market

3   efficiency.

4   And in your study, you have not -- you

5   do not have an assumed hypothesis of market

6   efficiency with respect to the market for XRP,

7   correct?

8   A.   Correct.

9   Q.   And under Point 2 in Mr. Binder's

10   study, he refers to market efficiency, and he

11   describes it as, At least with respect to

12   publicly information -- publicly available

13   information. Correct?

14   A.   Correct.

15   Q.   And that's economist code for

16   semi-strong efficiency?

17   A.   That's how I would interpret that,

18   yes.

19   Q.   Let's go to what I'll ask to be marked

20   as Exhibit 6, and directing your attention to

21   the work you did in the Rio Tinto case.

22   A.   Uh-huh.

23   (Sworn declaration of Dr. Albert Metz

24   in Rio Tinto case was marked Exhibit 6 for

25   identification, as of this date.)

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1

2   A.   Yes.

3   Q.   All right.

4   Just take moment. This is a -- copy

5   of your declaration in Rio -- in the Rio Tinto

6   case?

7   A.   It appears to be, yes.

8   Q.   And give us the context in which you

9   prepared this declaration.

10   A.   Well, that might be another long

11   answer. But -- if that's okay.

12   Q.   All right. I withdraw it. I'm sorry.

13   A.   No, it's -- you want me to answer the

14   question?

15   Q.   No, I don't, not if it's going to be a

16   long answer.

17   Let's go to page 11. I'm sorry,

18   paragraph 11.

19   A.   Page 11 only has my signature.

20   Q.   I'm sorry, it's paragraph 11 on

21   page 6.

22   A.   Got it.

23   Q.   Can you read -- read the whole

24   paragraph for us.

25   A.   Excuse me.

1

2   Statistical results such as the output

3   of a regression model are necessary but not

4   sufficient to conduct a complete analysis of the

5   type I present in my reports concerning the

6   ADRs. Assessing market efficiency is necessary

7   to support certain conclusions and form certain

8   opinions.

9   Q.   And this was a sworn declaration,

10 correct?

11   A.   Correct.

12   Q.   So in substance what you're saying is

13 that assessing market efficiency is necessary to

14 form certain opinions reached through conducting

15 an event study, correct?

16   A.   Yes, that's correct.

17   Q.   And is it correct, in your opinion,

18 that an assessment of market efficiency was

19 necessary to conclude that Ripple's news events

20 had an impact on the market price of XRP?

21   A.   I'm sorry, could you repeat it?

22 Sorry.

23   Q.   And is it correct that in your

24 opinion, an assessment of market efficiency was

25 necessary to conclude that Ripple's news events

1

2   had an impact, a statistically significant

3   impact, on the market price of XRP?

4   A.   So, I -- I thought you were going to

5   ask about Rio Tinto, but you're asking about

6   Ripple.

7   Q.   Uh-huh.

8   A.   So the question is, in my opinion, was

9   an assessment of market efficiency necessary to

10   form an opinion?

11   Q.   Uh-huh.

12   A.   That was the -- that was the question?

13   Q.   Reliable opinion.

14   A.   Well, as I -- as I've testified, it

15   depends on the nature of the opinion. It -- the

16   market -- the XRP market does not need to be

17   semi-strong efficient in order for -- in order

18   to draw the inferences and reach the conclusions

19   that I did for XRP and that other academics have

20   in the XRP market.

21   The -- it comes down to what inference

22   are you trying to draw from the statistical

23   result. And I -- I don't know what I'm allowed

24   to talk about in Rio Tinto, but let's just say

25   hypothetically -- and maybe I don't even have

1

2   to -- I don't know -- I don't know the rules.

3   Hypothetically, it's possible that you

4   could be arguing about the meaning of a

5   non-result; in other words, the price does not

6   move statistically. And so what does that mean?

7   Well, depending on the inference you

8   want to draw from that null result, you may need

9   to have established at least semi-strong market

10   efficiency.

11   Q.   The opinion you expressed in your

12   declaration in Rio Tinto was that assessing

13   market efficiency was necessary to support

14   certain conclusions and form certain opinions,

15   correct?

16   A.   Certain conclusions and certain

17   opinions, yes.

18   Q.   Okay. And my question was, was an

19   assessment of market efficiency necessary, in

20   this case, in Ripple -- in the Ripple case, to

21   support the conclusions and opinions that you

22   reached?

23   A.   Well -- so I've testified about this a

24   few times now. Your -- your question now is a

25   little bit different.

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2   I think it is important to assess the

3   efficiency, yes, because understanding whether

4   the market is, let's say, as informationally

5   efficient as the stock market or if it is less

6   informationally efficient than the stock market,

7   understanding that could inform how you conduct

8   the test.

9   For instance, do you only look at a

10 one-day event window, do you look at a three-day

11 event window, so on, so forth.

12   So I do think it is important, and, of

13 course, I did it to assess the efficiency.

14 However, establishing that the market is

15 semi-strong efficient is not necessary to reach

16 the opinions that I've reached in the Ripple

17 matter.

18   Q.   So I understand your testimony, you

19 said that market efficiency is not relevant to

20 reaching an opinion about the absence of market

21 impact. Correct?

22   Is that a fair summary of what you

23 said?

24   A.   I don't know.

25   I'm trying to go through the

1

2   negatives.

3   I apologize, just walk -- could you

4   repeat it?

5   Q.   As I understood your testimony, you

6   said market efficiency is not necessary to

7   conduct an event study that proves the absence

8   of market impact.

9   A.   No.

10   If you're going to draw an inference

11   from a single event, which, of course, is not

12   what we're doing in the Ripple matter, but may,

13   for instance, have been something that was being

14   done in the Rio Tinto or other matters, if

15   you're going to draw an inference from a single

16   event which presents a statistical result that

17   prices do not appear to react in a statistically

18   significant way, if you then want to draw an

19   inference, Well, then, therefore, this event did

20   not impact this price, that inference requires

21   establishing semi-strong market efficiency.

22   Other types of inferences do not

23   necessarily require establishing semi-strong

24   efficiency.

25   Q.   Does the presence or absence of market

1

2   efficiency effect a result in which you are --

3   you are rejecting a null hypothesis?

4   A.   Does the presence or absence -- I'm --

5   please, one more time.

6   Q.   Sure. Does the presence or absence of

7   market efficiency -- sorry.

8   I've got a glitch here on the

9   LiveNotes.

10   No, this -- I think I've got it now.

11   All right. Does the presence or

12   absence of market efficiency effect a result in

13   which you reject a null hypothesis?

14   A.   Does it effect a result in which you

15   reject a null hypothesis? Which null hypothesis

16   are we rejecting?

17   Q.   Whichever one you posit.

18   MR. MOYE: Objection. Compound.

19   A.   Let me try and -- let me try and

20   understand this question.

21   The null -- so I'll just tie it to the

22   null hypothesis that was at issue in my analysis

23   in this case.

24   The null hypothesis is that

25   Ripple Labs and its actions and news about its

1

2   actions is independent of the XRP market price.

3   That's the null hypothesis.

4   All right. Assuming that that is

5   true, assuming that they are independent,

6   certain things follow. If those things do not

7   follow to a statistically significant extent,

8   one can reject the hypothesis of independence.

9   Q.   I'm sorry. One can or cannot?

10   A.   Can.

11   All right. So -- so if it's

12   independent, certain things should be true. If

13   those things are not true, in the sense of they

14   are so unlikely, then that allows a researcher

15   to reject the null hypothesis of independence.

16   The analysis that I conducted did

17   not -- did not and does not require that the XRP

18   market be semi-strong efficient, just as the

19   academic studies we've been talking about this

20   morning do not require semi-strong efficiency to

21   reject the hypotheses that they reject.

22   Q.   Go back to your Rio Tinto declaration,

23   paragraph 16. You mention a 10-factor review

24   you did to market efficiency for the bond market

25   for -- in Rio Tinto, correct?

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1

2   A.   All right. Not to the bond market,

3   but to the ADR -- ADR market.

4   Q.   Did you conduct a 10-factor analysis

5   of the efficiency of the market for XRP in this

6   case?

7   A.   No, I did not. I didn't see any need

8   to.

9   Q.   All right. If we could go to

10   Appendix F of Exhibit 1.

11   A.   Yes.

12   Q.   Why did you include Appendix F in your

13   report?

14   A.   A couple reasons.

15   It -- it may have been, probably was,

16   adequate to cite to the academic literature on

17   the relative inefficiency of the XRP market.

18   But nevertheless, I wanted to conducted at least

19   a -- a simple analysis of that question.

20   Probably more importantly, I wanted to

21   explain why half -- why my statistical models or

22   at least half of them correct for serial

23   correlation in the XRP market. Since I'm going

24   to maker that correction, I thought I should

25   show the evidence that the serial correlation is

1

2   present at least at some times in the history of

3   the XRP market.

4   So it was with those two objectives

5   that I included Appendix F.

6   Q.   And with respect to market efficiency,

7   what you found was -- and I'm going to use rough

8   numbers here -- approximately 50 percent of the

9   days, you found that the market for XRP was not

10   even weak-form efficient, correct?

11   A.   I don't -- you may be right. I don't

12   remember the 50 percent of days.

13   Q.   I'm eyeballing it based on Figure 1.

14   A.   Yeah, I mean, I might agree with your

15   eyeball. It might be about 50 percent the days.

16   It's certainly not just one.

17   Q.   And just so the record is clear -- I

18   think it's clear from your report -- you put an

19   orange dot --

20   A.   Right, where it's significantly

21   different --

22   Q.   Let me just finish my question.

23   You put an orange dot on the graph to

24   reflect those days in which, based on your

25   autocorrelation study, you found that the market

1 ▮

2   was not -- was not even weak-form efficient,

3   correct?

4   A.   Yes, that's correct.

5   Q.   Did you calculate an autocorrelation

6   study for Figure 1 using a period other than

7   180-day rolling window that you reference in

8   paragraph 5?

9   A.   I don't -- I don't remember if I did

10   anything other than 180 days.

11   To me, it was enough that with 180-day

12   window, you'd find evidence of serial

13   correlation. That was enough to motivate me to

14   make sure that I used regression models that

15   correct for autocorrelation.

16   MR. FIGEL: It's noon. This is really

17   just -- you're the -- you're the person on

18   the hot seat. Would you like to take a

19   break and go to 1:00? Do you want to break

20   for lunch now? I'm indifferent to whatever

21   your preference is.

22   THE WITNESS: How long have we been

23   going since our last break.

24   MR. FIGEL: Hour and 20 minutes --

25   THE WITNESS: I suppose that's

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 1                    Metz

 2   appropriate.  Why don't we --

 3        MR. MOYE:  Let's take lunch break now.

 4        MR. FIGEL:  Lunch break now.  Okay.

 5        THE VIDEOGRAPHER:  We are going off

 6   the record at 12:01 p.m.

 7        (Luncheon recess at 12:01)

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1   ██████

2   A F T E R N O O N   S E S S I O N

3   (12:56)

4   ██████████ , Ph.D.

5   resumed, having been previously duly

6   sworn by a Notary Public, was

7   examined and testified further

8   as follows:

9   CONTINUED EXAMINATION BY MR. FIGEL:

10   THE VIDEOGRAPHER: We are back on the

11   record at 12:56 p.m.

12   Q.   Good afternoon, Dr. ██████ I would

13   like to direct your attention back to the

14   approximately 514 events that you divided into

15   the 14 categories.

16   A.   Yes.

17   Q.   First, did you do an individualized

18   assessment on each of those 14 events to

19   determine whether, standing in isolation, they

20   had a statistically significant impact on the --

21   A.   No.

22   Q.   -- price of XRP?

23   A.   No. I did not test each of those

24   events individually.

25   Q.   What methodology, if any, did you use

1

2   in developing, or identifying, the 14

3   categories?

4   A.   Categorizing events is part of the

5   event study methodology. And I applied my

6   understanding of economics and general judgment

7   to try and create a taxonomy of categories which

8   was helpful and complete.

9   Q.   Was there any academic literature,

10 accounting -- I mean any academic literature or

11 econometric guidance that you looked to in

12 formulating those categories?

13   A.   Well, again, categorizing news is

14 simply part of the event study process. So, for

15 example, in -- and I -- I tend to mix the two

16 studies up, but either Gerritsen or Joo or both,

17 they collect a set of events, and they then

18 categorize them by whether it's positive or

19 negative. That's part of the process.

20   But -- other event studies, looking at

21 other topics, will collect a set of events and

22 will characterize them by different types.

23   So characterizing events, categorizing

24 them, I view as simply part of the event study

25 methodology.

1

2   Q.   But the categories reflect your

3   subjective judgment, correct?

4   A.   The categories reflect judgment of

5   what I think is a helpful taxonomy of how to

6   organize these 700 articles.

7   Q.   But it's your judgment, correct?

8   A.   It is my judgment, yes.

9   Q.   And it's not guided by any economic or

10   econometric guidance or protocols that informs

11   how you allocate the events into specific

12   categories. Is that correct?

13   A.   Well, it is guided by my

14   understanding, general understanding of

15   economics, in terms of how it might be useful

16   when formulating an event study analysis to

17   group certain events together as separate from

18   other events.

19   Again, I -- I don't view that as

20   separate and distinct from the event study

21   methodology. I view it simply as part of the

22   event study methodology.

23   Q.   Do you disagree with this statement:

24   Classifying news is necessarily a subjective

25   exercise?

1

2   A.   I agree that there is necessarily an

3   element of subjectivity in the categorization of

4   news. Again, that's part of the accepted event

5   study methodology. It's an irreducible part of

6   the event study methodology.

7   Q.   Other than your judgment, did you rely

8   on any external guidance or factors to help you

9   identify the categories?

10   A.   I -- I discussed the categorization

11   with members of my team. But ultimately, it

12   reflects my judgment on a useful taxonomy of

13   these categories -- or, I'm sorry, of these

14   events.

15   Q.   And as we discussed previously, your

16   opinion that statistically significant price

17   movements in XRP are correlated with Ripple news

18   events is based on your analysis of just 5 of

19   those 14 categories. Correct?

20   A.   No, I don't agree with that. It's --

21   I reviewed several categories in reaching that

22   opinion. I also conducted robustness checks,

23   including robustness around the possibility that

24   I had miscategorized or misclassified news

25   events. And I found that the statistical

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1

2   results were robust. They held across all of

3   those variations.

4   Q.   Let's go to paragraph 48(b) of your

5   report, Exhibit 1.

6   A.   Yes, 48(b).

7   Q.   These are the categories that you

8   selected?

9   A.   That's correct.

10   Q.   All right. And five of these

11   categories are categories that you -- the events

12   for which you put together in a single

13   collective study that you described in

14   paragraph 100, correct?

15   A.   Yes, I believe it was five.

16   Q.   And those are milestones, trading

17   platform listings, customer and product

18   acquisition and investment, and Ripple

19   commercialization. Correct?

20   A.   Yes, that's correct.

21   Q.   So that's five; is that right?

22   A.   Yes.

23   Q.   Put those aside.

24   Of the remaining nine, how many did

25   you examine as a stand-alone category to see

1

2   whether you could find a statistically, quote,

3   significantly -- statistically significant

4   correlation between the events in that category

5   and the market price of XRP?

6   A.   In addition to those five, I performed

7   an analysis on other initiatives, and office and

8   staff announcements.

9   Q.   And just so the record's clear, you

10   then did not do an independent statistical

11   analysis on case study, charity, corporate

12   activity and announcement, litigation, market

13   commentary and company review, markets reports,

14   or miscellaneous. Correct?

15   A.   That's correct. It wasn't necessary

16   to reach my opinions.

17   Q.   And with respect to the studies you

18   did, or the analysis you did of the other

19   initiative and office and staff announcement

20   category, what was the conclusion of your

21   analysis as to whether the events in those

22   categories had a statistically significant

23   impact on the price of XRP?

24   A.   I found no evidence of a -- no

25   evidence of a correlation between the

1   ████

2   announcements in those categories and

3   significant XRP price increases.

4   Q.   So now we've got seven that I'm going

5   to ask you to put aside, and the remaining

6   seven, the ones that you said you did not

7   perform an analysis of with respect to the

8   events in that category. You with me?

9   A.   Yes.

10   Q.   With respect to those seven other

11   categories, as you sit here today, you don't

12   know whether the events in those categories,

13   standing alone or collectively, had a

14   statistically significant impact on the price of

15   XRP, correct?

16   A.   Correct, sitting here today, I do not

17   know the answer to that question. It wasn't

18   germane to my -- I -- it wasn't necessary for me

19   to reach my opinion.

20   Q.   And fair to say that the reason you

21   didn't perform a -- an analysis of the events in

22   those categories is, your judgment was that

23   based on the nature analyses, it was unlikely

24   that they would have a statistically significant

25   impact on the price of XRP. Correct?

1

2   A.   I -- I'd say it was a little bit more

3   nuanced than that.

4   That's -- that's partially true, and

5   certainly true of some categories. I would say,

6   you know, even if we believe that Ripple Labs

7   impacts XRP markets, even if we take that as

8   true, for example, when they publish a couple of

9   paragraphs talking about somebody who has used

10   the product and -- and had a good experience

11   with it, I -- my expectation before running an

12   analysis would be, I don't -- I would be

13   surprised if that moved prices. It just doesn't

14   seem like the sort of thing that would move

15   prices.

16   So in some cases, I agree, we could

17   probably go through categories and -- and I

18   would give you the answer that my expectation --

19   even presuming a link between Ripple Labs and

20   XRP, my expectation would be you probably

21   wouldn't see an association there.

22   But the -- the -- the real point is,

23   it wouldn't -- it wouldn't particularly interest

24   me whether we saw an association there.

25   So let me explain that for a second.

1

2   If there was no correlation between customer and

3   product announcements of banks signing up to

4   RippleNet and all those other things, if there

5   was no correlation there, and yet there was a

6   correlation among, you know, corporate

7   overviews, or announcing who's going to speak at

8   an upcoming conference, right?

9   So suppose there's no correlation

10   among customer and product but there is a

11   correlation among the announcements and speakers

12   of upcoming events. Personally, I wouldn't find

13   that terribly persuasive of a connection between

14   Ripple Labs and XRP markets.

15   On the other hand, if there is a

16   connection between customer and products

17   announcing growth in RippleNet and new people

18   signing up, and yet there was no correlation

19   among announcements of upcoming speakers at

20   conferences, again, I -- first of all, that

21   wouldn't surprise me. But second of all, it

22   wouldn't -- it wouldn't alter my opinion.

23   So I viewed some categories as

24   meaningful to test in the sense that if we found

25   a correlation, or if we did not find a

1   ███████

2   correlation, that would be economically

3   interesting to the question at hand.

4   And then there were other categories

5   that I set aside where, in my view, whether you

6   found it or didn't find it wouldn't really

7   provide any -- much compelling evidence one way

8   or the other.

9   So I just didn't think they were worth

10   testing.

11   Q.   All right. And just so the record's

12   clear, of the seven we're talking about now that

13   you didn't test, why don't you identify for us

14   which ones you expect would not have a

15   statistically significant correlation between

16   the event and the impact on the price of XRP.

17   A.   Well, I'm happy to do that, just --

18   just so we understand, you -- you're really just

19   asking for my just prior expectation. And I

20   haven't run the analysis, I don't know the

21   answer.

22   My prior expectation is that the

23   events in the case study category, which

24   generally are articles on the Ripple Insights

25   page where a bank or a financial institution,

1

2   you know, discusses how they've used RippleNet

3   and -- and how it was fast and it was

4   inexpensive --

5   Q.   I don't mean to interrupt you. I'm

6   just asking you to identify which ones -- as you

7   sit here today, you don't have an expectation

8   today or you --

9   A.   Sorry.

10   Q.   A list would be fine. The reasons why

11   are less important and they're not responsive to

12   the question I'm asking you.

13   A.   Okay. I -- I understand.

14   Q.   I'm sorry to interrupt you.

15   A.   Again, I would -- case study.

16   Probably charity.

17   The litigation category, I -- you

18   might expect a negative reaction, but there are

19   very few events there so it was awfully small to

20   test.

21   Market commentary and company

22   overview, again, those are sort of puff piece

23   articles. I wouldn't -- I wouldn't think that

24   would move the price but --

25   The markets report, I wouldn't have

1   ███

2   expected to move the price.

3   The miscellaneous, I'm trying to

4   remember what's in there. I think the -- what

5   is it, the Arrington XRP hedge fund. There's

6   not -- there are very few things in there. May

7   I consult Appendix C to remind myself?

8   Q.   You're welcome to consult anything you

9   need to make sure your testimony is complete and

10   accurate.

11   A.   Okay. Thank you.

12   I just -- just want to remind myself

13   what's in that category.

14   (Witness reviewing document.)

15   A.   Miscellaneous. So yeah, hackathon

16   challenge, yeah, the Arrington fund. The

17   Arrington fund, you know, that's an interesting

18   event, but it doesn't really belong in any other

19   category, at least in -- in my estimation.

20   Right, so, you know, this -- this set

21   of events, it's kind of a mixed bag. I really

22   don't know what my prior expectation would be on

23   that set of events. And I think that's --

24   that's it.

25   Q.   That's all. That's correct. Thanks.

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2   So let me direct your attention to

3   general market commentary.

4   A.   Uh-huh.

5   Q.   And I guess what -- I guess what the

6   category is -- market commentary and company

7   overview is the category.

8   A.   Correct.

9   Q.   All right.

10   So you rejected the possibility that

11   XRP might have a statistically significant price

12   impact on XRP -- withdrawn.

13   So you reject the likelihood that --

14   of -- press releases about market commentary and

15   company -- and Ripple company overview would

16   have a statistically significant impact on the

17   price of XRP?

18   A.   Well, with respect to your language,

19   it's -- to reject the likelihood, that sounds

20   like a --

21   Q.   Well --

22   A.   -- scientific procedure. You asked me

23   my ex ante expectations. That's -- that's all

24   they were.

25   Q.   All right. As you sit here today,

1   ███

2   it's your view, your judgment, that the events

3   that were -- that you put in the category of

4   market commentary and company overview would not

5   have a statistically significant impact on the

6   price of XRP, correct?

7   A.   I still think your language is

8   overstating the strength of my conviction.

9   My -- my ex ante expectation is that it won't.

10   I wouldn't -- I wouldn't elevate that to a -- to

11   a view or an opinion. I -- you asked my

12   opinion, you know. You asked me, do I think it

13   would. I -- my expectation is that it wouldn't.

14   That's all I can say.

15   Q.   And just so the record's clear, and

16   you didn't do a -- an analysis of this category

17   to de-- to answer that question. Correct?

18   A.   Correct. I don't recall doing an

19   analysis of this category to determine one way

20   or the other.

21   It -- I mean, it -- a lot of the

22   things in this category -- this is, I think, the

23   single largest category. A lot of it is

24   third-party articles about what is

25   cryptocurrency, and maybe they have a paragraph

1

2   about what is XRP, who is Ripple. It's a lot of

3   just general market commentary, as the name

4   suggests.

5   And my expectation is, I'd be

6   surprised if that moved prices. It might. But

7   I just -- I would be surprised.

8   Q.   Okay. And the consequence, or the

9   result, of excluding the events in the

10   nine categories that you didn't include in the

11   regression that you described in paragraph 100,

12   was to reduce the number of Ripple events from

13   approximately 514 to 113. Correct?

14   A.   Well, that's -- yes, that's -- that's

15   correct. We start with 514 events, and we end

16   up studying 113 events, if I recall.

17   Q.   Now, when you describe the process by

18   which you conducted your analysis in your

19   report, if I understand it correctly, the first

20   thing you did was to regress market prices of

21   XRP against 20 different models to determine

22   what days there was a statistically significant

23   change in the price of XRP. Correct?

24   A.   Rather than XRP prices, if you had

25   said XRP returns, yes. I -- I conduct -- I run

1

2   20 different regression models of XRP returns,

3   against different -- 20 different sets of

4   control variables.

5   Q.   I accept the clarification, and I

6   appreciate it.

7   But as a result of running the price

8   data of XRP, against those 20 different models

9   you are able to identify on a day-by-day basis

10   each day in which there was a statistically

11   significant price return of XRP, correct?

12   A.   That sounds generally correct. Yes.

13   Q.   Did you consult the results of that

14   aspect of your study before you decided to

15   exclude the approximately 401 events, that you

16   put in the nine categories that we just

17   discussed?

18   A.   No. No. My -- my -- my organization

19   of the news events was conducted without

20   reference to results from the statistical

21   models. It was based on my economic

22   understanding of -- my economic understanding.

23   Q.   I'm not sure your answer was

24   responsive to my question. Let's just talk

25   about temporally or chronologically.

1

2   As you described in your report, the

3   first thing you did was identify the days in

4   which there's a statistically significant price

5   return for XRP. Correct?

6   A.   Now, you -- all right. You really

7   want to talk about the temporal sequence in

8   which certain things were done.

9   We pulled -- you know, I -- we

10 collected the news from Ripple Labs as one of

11 the very first thing we did. Perhaps in

12 parallel and simultaneously, we collected

13 pricing data on digital tokens. But I certainly

14 don't want to leave any suggestion that there

15 was some kind of review of the statistical

16 results which then informed the selection of

17 news categories. That's categorically not true.

18   Q.   How do you know that?

19   A.   Because I conducted the study.

20   Q.   I thought you said you had a team of

21 people that were evaluating the data and making

22 recommendations to you.

23   A.   All I -- I conducted the study. It

24 is -- it was my determination of how to

25 categorize the news. I just -- I -- I can state

1 ███

2 categorically that it was not -- the selection

3 of events or categories, was not informed by a

4 review of statistically significant results.

5 That would be an improper procedure.

6   Q. But at least the way you described the

7 process in your report -- give me just a second.

8 Sorry.

9   So let's go to page 28 of Exhibit 1.

10   A. Yes.

11   Q. You -- you -- you there -- you set out

12 on this page in -- in Section E a summary of the

13 empirical methodology. Correct?

14   A. Yes.

15   Q. And you say, first, you specify the

16 regression model of XRP returns, correct?

17   A. Uh-huh.

18   Q. And you identify the event window.

19   A. Uh-huh.

20   Q. And then you estimate the cumulative

21 abnormal returns for each trading day, correct?

22   A. Uh-huh.

23   Q. And then you --

24   MR. MOYE: You have to say yes or no.

25   THE WITNESS: I'm sorry.

1

2   A.   Yes.

3   MR. FIGEL: Thanks.

4   Q.   You tested using you both parametric

5   and nonparametric approaches, correct?

6   A.   Correct.

7   Q.   And that tells you on a day-by-day

8   basis which days there is a statistically

9   significant price return for XRP, correct?

10   A.   Correct.

11   Q.   And then the last thing you say you do

12 here is, finally, you examine the interaction

13 between the set of news days you've identified

14 and the set of days with positive returns.

15   A.   Correct.

16   Q.   It suggests that you had identified

17 the number of days with a statistically

18 significant price return before you applied the

19 event days in which you were looking for a

20 correlation.

21   A.   I'm genuinely surprised that you read

22 it that way. I read it -- of course, I know

23 what was done -- as saying, these are -- these

24 are the -- the steps of the empirical analysis

25 to which we then apply that to a set of news,

1

2   that we have identified. It doesn't say, we do

3   this analysis to then determine the set of news

4   that we will then test. I mean, you're

5   inserting that step that's not there.

6   Q.   Well, the first thing that you

7   describe in your summary of the empirical

8   methodology is a process by which you identify

9   the days on which there is a statistically

10   significant price return. Correct?

11   A.   This is laying out the -- in a way

12   that is meant to be helpful, a sequence of

13   events that must be conducted in this order. In

14   other words, you have to begin by specifying a

15   regression, et cetera, et cetera, et cetera.

16   All of that then gets applied to a set of events

17   that you want to study.

18   Now, if -- if it would -- if you would

19   like -- I mean, we could have inserted a

20   paragraph in the beginning that says, first,

21   select the events and then do all of these

22   things.

23   I considered that to be there by

24   implication. That is certainly how any event

25   study is connected. You begin with a set of

1 ▮

2   events; then you run through the statistical

3   analysis to get the -- to get the -- identify

4   which days are significant. And then we test to

5   see whether the events are correlated with the

6   days of statistical significance. That's how it

7   was done; that's how event studies are generally

8   conducted.

9   Q.   But what you just described is not how

10   testified earlier. What you testified earlier

11   to was that you took 500-some events, put them

12   into categories, and then effectively rejected

13   nine of the categories. Correct? And then you

14   applied the remaining five categories to the

15   days to which you --

16   A.   And having -- having done that --

17   Q.   Let me finish. I'm sorry.

18   A.   -- I then followed these steps and

19   this work --

20   Q.   Let me just finish.

21   The -- what you described was that you

22   did the regression that identified days with

23   statistically significant price returns,

24   correct?

25   A.   I'm sorry. Say it again.

1

2   Q.   You conducted a regression analysis

3   that allowed you to identify what you believed

4   were the days for which there was a

5   statistically significant price return for XRP.

6   Correct?

7   A.   I did conduct such regression

8   analysis, yes.

9   Q.   And then you also had a set of

10   500-some events that you had identified,

11   correct?

12   A.   Correct.

13   Q.   And you reduced those -- the 514

14   events that you had in 14 categories to 105

15   events in five categories. Correct?

16   A.   113 events in five categories, yes.

17   Q.   And 105 event days?

18   A.   Event -- 105 unique days, yes.

19   Q.   Right. And it was only the 105 event

20   days that you applied to the days on which -- or

21   that you correlated to the days on which there

22   was a statistically significant price return.

23   Correct?

24   A.   No. Again, I -- we've -- we've gone

25   over this a few times. I tested categories in

Page 144

1

2   addition to those 105. Remember, I tested

3   office and staff announcements and noncommercial

4   XRP initiatives, in addition to those other

5   113 events.

6   But, again, I just want to make it

7   very clear, because I -- I worry that -- I just

8   want to make it very clear, and I hope you're

9   not trying to insinuate that I looked at which

10   days were significant and then decided how to

11   organize the news. That would be improper, and

12   that's not how -- that's not what was done. And

13   that's not how I conduct my work.

14   Q.   Why would it be improper?

15   A.   It would be improper because it's

16   become circular. Obviously -- and this really

17   is -- is criticism I have of the rebuttals of

18   Dr. Marais and Professor Fischel. It is not

19   proper to begin with a set of statistically

20   significant days and then go look to see whether

21   or not you can find news on those days.

22   That does seem to be the methodology

23   that they're endorsing. It's not the correct

24   methodology. Becomes completely circular. I'll

25   give you an example.

1 ███

2   It may very well be true -- I do not

3   know if it is true or false, but it would not

4   surprise me if Ripple Labs, some combination of

5   Ripple Labs and Mr. Garlinghouse and Mr. Larsen

6   and Mr. Schwartz probably issue a tweet every

7   day. It wouldn't surprise me. May not be true,

8   but it wouldn't surprise me if they're issuing a

9   tweet every day.

10   So if I started with, well, here, a

11   set of statistically significant days; let me go

12   look and see whether or not I can go find

13   something. I'd be willing to bet that the

14   answer is, yes, I can go find something on each

15   and every one of those days. Here's a tweet

16   from Mr. Garlinghouse. Here's a statement from

17   Mr. Schwartz. That's a meaningless exercise.

18   Dr. Marais and Professor Fischel seem

19   disappointed I didn't do that exercise, but it's

20   an utterly meaningless exercise. And that's not

21   how I conducted this analysis, and it's not

22   proper.

23   To be meaningful, you have to start

24   with a set of events and ask the question: Does

25   this set of events, is it associated with

1   ▮

2   statistically significant price changes or not?

3   Q.   I want to do just a -- a simple little

4   bit of arithmetic.

5   Had you tested for all of the 514

6   events -- I may have the numbers wrong -- 514

7   events against the regression analysis that

8   identified statistically significant price

9   returns, you still would have come up with

10   24 points of coincidence. Maybe a few more,

11   maybe a few less. But your assumption is that

12   the nine categories you excluded were unlikely

13   to have a correlation with a statistically

14   significant price impact on XRP. Correct?

15   A.   Again, that was -- as we went through

16   them, that was my prior expectation. I -- I

17   don't think I had an expectation on the

18   miscellaneous category, and the litigation

19   category I probably would expect an association

20   with negative returns rather than positive

21   returns.

22   But certainly, if in the nine -- if in

23   the five categories that we study, there are

24   24 days, if we add categories, we will always

25   have at least 24 days, and, of course, we may

1   █████

2   have more.

3   Q.   Right. And given that we don't know

4   what we don't know since you didn't do the test,

5   you agree with me, rough numbers, that 24 over

6   105, which is the results of the corr-- the

7   correlation between the Ripple events that you

8   included and the days on which you found -- I'm

9   sorry.

10   Withdrawn.

11   You agree with me that the -- of the

12   105 events that were included in the -- event

13   days that were included in the five categories

14   that you describe in paragraph 100, you found a

15   correlation with 24 days of statistically

16   significant price returns on XRP. Correct?

17   A.   I think -- I think we'd have to --

18   we'd have to specify which model, because not

19   every model covers the entire time period. But

20   there -- I -- I -- there may be some models

21   which -- to which the answer to your question is

22   yes. I just don't have it memorized.

23   Q.   Why don't we go to paragraph 100.

24   A.   Yes.

25   Q.   All right. Tell me if I'm reading

1

2   this right.

3   You identify 105 event days spanning

4   2,369 trading delays, correct?

5   A.   Uh-huh.

6   MR. MOYE: Say yes.

7   A.   Yes. I'm sorry, yes.

8   Q.   And you had 105 Ripple event days,

9   correct?

10   A.   Yes, that's correct.

11   Q.   And of those 105 Ripple event days,

12   you found 24 days on which there was a

13   statistically significant price return, correct?

14   A.   Per the -- per one of the models.

15   Just to -- just to be clear, again, using -- I'm

16   reading this second sentence of paragraph 100 --

17   again, using the constant mean return model as

18   an example. So these numbers all apply to that

19   model.

20   Q.   And that's Model 1, correct?

21   A.   That's Model 1, correct.

22   Q.   And so the simple arithmetic is 24

23   over 105, correct? Using the constant --

24   A.   I mean, that -- that is --

25   Q.   -- mean return model.

1

2   A.   Sorry.

3   That is a simple arithmetic

4   calculation one could do. That is not the

5   arithmetic calculation that I did to reach my

6   conclusion. I just want to be clear.

7   But one could divide 24 by 105.

8   Q.   And you'd get about 23 percent,

9   correct?

10   A.   That sounds right.

11   Q.   And if you had run 514 event days

12   against the price returns you found through the

13   constant mean return model, and you still found

14   24 days of correlation, you'd have about

15   5 percent, correct?

16   A.   Well, if, if, if. That would -- that

17   would be what the arith-- the arithmetic would

18   show.

19   Q.   Was that a factor in your subject--

20   the exercise of your subjective judgment to

21   exclude 9 of the 14 categories, from the

22   analysis that you conducted as described in

23   paragraph 100?

24   A.   No. There -- there's -- there is no

25   economic significance to that result.

1

2   There's no economic significance to

3   that result whatsoever. It's not an interesting

4   result. I'm not -- didn't run the analysis

5   because it's not interesting to run that

6   analysis.

7   Q.   And why is it not interesting from an

8   economic perspective?

9   A.   Because it -- because once you start

10   throwing in a bunch of articles that are not

11   breaking any news, they don't even purport to

12   break any news, once you -- one you throw in a

13   bunch of things which have nothing to do with

14   whether Ripple Labs is going to impact XRP

15   prices, testing whether they impact XRP prices

16   just becomes an uninteresting exercise.

17   For example, we could do an event

18   study on whether earnings announcements impact

19   stock prices. That's an interest question.

20   That's an interesting analysis. People have

21   done it.

22   It is not an interesting question to

23   say, Well, to those earnings announcements,

24   let's add every press release that the company

25   ever issued about anything whatsoever and see if

1

2   there's an association with price movements.

3   The reason that's not interesting is

4   because, even before you do it, you sort of know

5   that the answer is going to be, it won't.

6   Because if it were -- if it were that easy to

7   move a stock price, if all a company had to do

8   to move a stock price is issue a press release

9   about something, they'd do it all the time and

10   move their stock price all the time, so it's

11   just not an interesting question.

12   It was interesting to me to see if

13   these categories, product announcements,

14   customer announcements, things related to

15   growing the XRP ecosystem, if that moves the XRP

16   market, that's an interesting result.

17   Finding that every time the New York

18   Times wrote an article about cryptocurrency as a

19   mentioned XRP, that that does not move the XRP

20   market, is neither here nor there. It's just

21   irrelevant.

22   Q.   But that's not the source of events

23   that you collected, Dr.   The source of

24   events that you collected were what you

25   described as publications by Ripple that you

1

2   deemed that Ripple thought was important.

3   Correct?

4   A.   No.   What I collected were news on

5   Ripple's curated web page, which includes, for

6   example, links to third-party articles. They

7   link to a New York Times -- I mean, maybe not a

8   New York Times, but they will link to somebody

9   else who wrote an article saying, The 50 best

10   places to work in the Bay area and Ripple Labs

11   is, I don't know, Number 23. Right? They want

12   to trumpet that. They want say, Hey, great,

13   we're a great place to work, so they link to an

14   article like that.

15   Now, testing whether the XRP market is

16   going to move in response to that kind of

17   announcement is just a waste of time. It's

18   uninteresting.

19   My expectation is that it won't. But

20   it wouldn't matter to me if it did.

21   Q.   Could you read for me the portion of

22   your report set forth in paragraph 48(a).

23   Just the first sentence.

24   A.   48A.

25   I start with the news which

1   ███

2   Ripple Labs has identified to be important by

3   virtue of, 1, having issued a press release

4   about the event, or 2, having written about it

5   on its Insights news page, or 3, having linked

6   to a third-party news outlet in its curated

7   newsroom page.

8   Q.   And then read the last sentence of

9   paragraph 48A.

10   A.   I simply assume that based on its

11   understanding of its business and industry,

12   Ripple had some basis to highlight certain

13   events and not others.

14   Q.   So you -- in your methodology, you

15   substituted your judgment for Ripple about what

16   events you thought were important to evaluate as

17   to whether it had a statistically significant

18   impact on the XRP price return. Correct?

19   A.   No, that is not correct. That is not

20   a fair characterization of what happened.

21   Ripple did not assemble these articles for the

22   purposes of conducting an event study on whether

23   there's an impact on XRP markets.

24   They assembled a set of articles that

25   conveyed information that they generally wanted

1

2   to convey, whether that would impact XRP markets

3   or not.

4   So they had their objectives in mind,

5   and I have my objectives in mind, and they are

6   not same objectives.

7   So they're perfectly free to link to

8   an article trumpeting Ripple Labs as one of the

9   best places in the Bay area to work, that's

10   perfectly fine. But that is not suitable

11   material for an event study of the type that

12   we're conducting.

13   Q.   You wrote in your report, that you

14   assumed that Ripple had some basis to highlight

15   certain events and not others. Correct?

16   A.   I did write that, yes.

17   Q.   And you said, in your report, that you

18   started with news which Ripple has identified to

19   be important. Correct?

20   A.   Correct.

21   Not for the purposes of conducting an

22   event study but just news that they thought was

23   important.

24   Q.   Why do you think -- what is your

25   assumption about why Ripple thought it was

1

2   important to include these events on its

3   website?

4   A.   I wouldn't presume. Most of them

5   were -- almost all of them were positive in

6   nature, saying good things about Ripple, good

7   things about cryptocurrency, good things about

8   XRP.

9   I -- I don't find it surprising that a

10   company would want to almost retweet, if you

11   will, if not literally, but -- but call

12   attention to press accounts and press reports

13   that are favorable or shed -- put their products

14   in a -- in a good light, I don't find that

15   surprising.

16   Q.   Did you assume that the reason Ripple

17   had these events on its website and publicize

18   them was to increase the market price of XRP?

19   A.   I -- I'm not going to speculate on

20   their motive for linking to things. It's not --

21   it's not the domain of an economist to speculate

22   on their motive.

23   Q.   All right. Let's now go to

24   paragraph 85.

25   A.   Yes.

1

2   Q.   All right. And you note there that,

3   Not all product developments might be expected

4   to lead directly to increased utilization of

5   XRP.

6   Correct?

7   A.   I just -- bear with me one second.

8   Correct.

9   Q.   Why did you consider it important to

10 observe that not all product developments might

11 be expected to lead directly to increased

12 utilization of XRP?

13   A.   Again, it -- if there is a -- an

14 announcement or event, the nature of which

15 wouldn't be expected to have any sort of impact

16 on XRP, even if there is a link, which there may

17 not be -- that, again, is what we're testing --

18 even if there is a link between Ripple Labs and

19 XRP markets, it's not -- it doesn't become an

20 interesting event to test, because whether you

21 find something or whether you don't find

22 something doesn't provide evidence one way or

23 the other that's helpful to the matter at hand.

24   So announcing that MIT is opening up a

25 validator, that's fine. They're welcome to

1   ▮▮▮

2   announce that. Some people may find that

3   interesting. The link between that and somebody

4   saying, Oh, well I guess I'll go buy XRP, seems

5   somewhat tenuous.

6   So whether that event is or is not

7   associated with XRP price increases is not an

8   interesting question.

9   I note that in Appendix E, again, one

10 of the robustness tests I run is to take all of

11 these events that I've excluded here and add

12 them back just to show that my statistical

13 results do not depend in any way on these

14 exclusions.

15   Q.   You didn't write that not all product

16 developments might be expected to lead to a

17 statistically significant price impact on XRP,

18 did you? In paragraph 85.

19   A.   I did not write -- I'm sorry. Say it

20 again.

21   Q.   You did not write in paragraph 85 that

22 not all product developments might be expected

23 to lead to a statistically significant price

24 impact on XRP, did you?

25   A.   No, I did not write that.

1

2   Q.   So here you're focusing on increased

3   utilization of XRP. Correct?

4   A.   Correct.

5   Q.   And that's not what you were testing

6   for, was it?

7   A.   No. I'm testing for price impacts.

8   Q.   So are you assuming that only news

9   events that lead to increased utilization of XRP

10 will result -- will result in a price impact?

11   A.   Certainly not.

12   Q.   But the basis on which you excluded

13 six events from this category was based on a

14 judgment that those events would not lead to an

15 increased utilization of XRP. Correct?

16   A.   These events did not seem relevant to

17 testing for a link between Ripple Labs and the

18 XRP market, hence I excluded them. Again, my

19 results hold if you want to add them back. I

20 have that result in Appendix E. So nothing

21 hinges on this exclusion.

22   But it struck me as appropriate to

23 exclude events that didn't speak to XRP

24 utilization.

25   Q.   Just to be clear, the study you talk

1

2   about with the add-backs, you didn't add back

3   all of the events, did you?

4   A.   No. I added back these -- these sorts

5   of exclusions. So, for instance, when I say,

6   Identify some announcements as being stale, or

7   in this case, I identified some announcements as

8   being -- I think I used the phrase "direction

9   uncertain," I do a -- one of the robustness

10   checks that I do in Appendix E is to add them

11   back them, just to demonstrate that my results

12   are not dependent on these exclusions.

13   I still think they're appropriate. I

14   still think they're the right thing to do. But

15   if somebody strongly disagrees and thinks that

16   we ought to add back the event of MIT announcing

17   a new validator, we can add it back. It doesn't

18   change the results.

19   Q.   Let's just be clear about what events

20   you added back in, in the study or the analysis

21   that you just described.

22   You added back in the events from

23   particular categories that you excluded based on

24   a subjective judgment that you believed it

25   wouldn't have -- wouldn't lead to an increased

1

2   utilization of XRP. Is that correct?

3   A.   I added back -- before I -- may I

4   consult Appendix E? I just want to make sure

5   I -- I don't want to say something that's not

6   true. Let me just check one thing in

7   Appendix E. I certainly add back those events.

8   I think I also added back events that were

9   stale.

10   Q.   If you wouldn't mind, as you do that,

11   would you just make sure that the record is

12   clear what information you're referring to.

13   A.   Sure. So I did a robustness check in

14   Appendix E, which I'm just looking for now. And

15   I just want to remind myself exactly of the

16   parameters of that robustness check. And I have

17   so many robustness checks that I just -- it

18   takes me a minute to find them.

19   (Witness reviewing document.)

20   A.   Oh, okay. So I'm looking at page 6 of

21   Appendix E.

22   So page -- let's look at both page 5

23   and page 6. Page 5 are the specific test

24   statistics on the select set of customer and

25   product developments. So that's the set that

1

2   we've been discussing where, starting with

3   customer and product announcements, I exclude

4   those that are stale or have an uncertain

5   directional implication for XRP utilization.

6   So what's on page 5 of Exhibit E are

7   the test statistics which underlie the exhibit

8   in the body of the report, if you follow me.

9   Q.   Uh-huh.

10   A.   Page 6 is exactly that same set except

11   you'll see customer and product developments,

12   all. So here I've just added back everything

13   that I had excluded from the first one, just to

14   show that the results are essentially unchanged.

15   Q.   All right. Let's go to Appendix C.

16   A.   I'll definitely need my reading

17   glasses for this.

18   Q.   If you have them, put them on.

19   Appendix C lists all of the individual

20   events that you collected and placed in the

21   various categories. Is that right?

22   A.   It does. Strictly speaking, it lists

23   all of the documents, but it also lists all of

24   the events.

25   Q.   And pages 3 through 6, going back to

Page 162

1 ▮

2   where we were, is the customer and product

3   category. Correct?

4   A.   Excuse me.

5   Yes, that appears to be correct.

6   Q.   And do you see, event ID 255 on the

7   last line of page 4?

8   A.   Yes.

9   Q.   And you see there's another Event 255,

10   on the first page of page 5?

11   A.   Yes.

12   Q.   And the date of that event is

13   November 22, 2027; is that correct?

14   A.   2017.

15   Q.   2017. I'm sorry. Yes.

16   A.   Yes.

17   Q.   And this is one of the events you

18   included in your analysis. Is that right?

19   A.   It's certainly part of the category.

20   I would have to go back and see if it was on the

21   list of excluded events. I don't think it was.

22   So --

23   Q.   So let's go to page -- I think it's

24   page 20 of your report.

25   I'm sorry. Page 40, Figure 20, I

1

2 think, is what it is.

3   A.   Right. Yeah, no, it doesn't appear to

4 be on that list.

5   So it should have been -- I believe it

6 was included.

7   Q.   So Event 255 is not listed. Is that

8 correct?

9   A.   I didn't see it listed, no.

10   Q.   And you don't have an event dated

11 November 22, 2017?

12   A.   On that list, no.

13   Q.   Going back to -- apologize for this,

14 but I don't have a better way to do it.

15   All right. The second document or the

16 second event or document, you give

17 Document ID 7790. Is that right?

18   A.   This -- this second document for

19 Event 255, is Document ID 7790. That's correct.

20   Q.   Right. And that's in Appendix C,

21 Standard Chartered, Axis launch payment services

22 with Ripple Tech, correct?

23   A.   Correct.

24   Q.   All right. If we could go to the

25 press release from November 22.

1 ███

2   This will be the CoinDesk.

3   So I think this will be Exhibit 7.

4   (Press Release titled "Standard

5   Chartered, Axis Launch Payments Service

6   with Ripple Tech" was marked Exhibit 7 for

7   identification, as of this date.)

8   MR. MOYE: I'm sorry. I have 6. Did

9   I miss one?

10   MR. FIGEL: I had 6 as his declaration

11   from Rio Tinto.

12   MR. MOYE: Got it. Thank you.

13   Q.   Do you recall looking at this press

14 release?

15   A.   It seems familiar, yes.

16   Q.   And this talks about a new

17 cross-border platform that's being built on top

18 of technology developed by Ripple. Correct?

19   A.   Uh-huh.

20   Q.   And if you look at the last paragraph,

21 could you just read the -- the first sentence of

22 the last paragraph.

23   "Not included."

24   A.   Not included in the cross-border

25 platform is Ripple's XRP digital asset. The

1 ▮

2 spokesperson for the start-up confirmed that

3 SC -- which I assume is Standard Chartered --

4 and Axis are not using XRP to facilitate

5 transactions between Singapore and India.

6   Q.   So fair to say that the events

7 described in this press release would not lead

8 to increased utilization of XRP, correct?

9   A.   As described here, this particular

10 product, it says it is not using XRP.

11   It's a cross-border payment platform

12 built on top of Ripple technology. But this

13 particular technology, it says, is not using the

14 XRP token.

15   Q.   Can you tell us why you didn't exclude

16 Event 255, from your analysis on consumer and

17 product announcement events?

18   A.   Because this is an announcement of

19 banks using Ripple technology to effect

20 cross-border payments. The particular corridor,

21 I agree, it says it's not using XRP. But this

22 is, I would say, an expansion or enhancement to

23 the ecosystem that Ripple is interested in

24 building.

25   It is an interesting question, it

Page 166

1 ▮

2   seems to me, to know whether or not this event

3   moved XRP prices. May it did; maybe it didn't.

4   Q.   He didn't perform a test to determine

5   whether it didn't or it didn't even though it

6   was an interesting question, correct --

7   A.   I --

8   Q.   -- Dr. ▮

9   A.   I did not look at this event in

10   isolation to determine whether or not to include

11   it in the study. I do not know, sitting here

12   today, whether XRP prices move following this

13   event or whether they do not.

14   Q.   Now, if you go to the second paragraph

15   of this release, you see where it says,

16   According to SC's release?

17   A.   I'm sorry, where?

18   Q.   Second paragraph, second line at the

19   right.

20   A.   Yes.

21   Q.   And SC presumably is Standard

22   Chartered?

23   A.   That would be my interpretation.

24   Q.   Did you go to -- look at Standard

25   Chartered's release?

1   █████

2   A.   Unless it was in the Ripple set, if

3   they didn't link to it, no, I didn't go look at

4   it.

5   Q.   Why not?

6   A.   I didn't see the need to.

7   Q.   Do you know how many other press

8   releases you considered in which you included as

9   an event an announcement about a customer who

10 was using a Ripple-related product that did not

11 include the use of XRP?

12   A.   In many of the announcements, it's

13 difficult to know explicitly whether XRP is

14 going to be utilized or not.

15   It struck me as an interesting

16 question to know if announcements of this type,

17 announcing new customers using Ripple

18 technology, whether that moved XRP prices or

19 not.

20   Your expectation might be that this

21 announcement wouldn't. You might be right.

22   Q.   And just so the record's clear, even

23 though you find that to be an interesting

24 question and even though you acknowledge that at

25 least with respect to this press release,

1

2   there's not a direct increase in the utilization

3   of XRP, you didn't test to see whether it was

4   statistically significant. Correct?

5   A.   I included it in a set of events and

6   tested the joint significance of that set of

7   events.

8   To the extent that this one has

9   nothing to do with XRP and XRP prices don't

10 react, my results get a little bit weaker.

11 That's -- that would be the downside.

12   Q.   Why do they get weaker?

13   A.   Well, if you add an event -- I mean,

14 if you add an event and there is no price

15 reaction, that makes the joint significance of

16 your set of events weaker.

17   Q.   So the 400 or so events that you

18 excluded, had you included them, would have made

19 the results of -- the joint significance of the

20 set of events weaker. Correct?

21   A.   Meaningless and almost surely weaker.

22   But the important point is that it's a

23 meaningless exercise to run.

24   Q.   Let's go to -- apologize for having to

25 go back and forth like this -- page 5 of

1 ███

2   Appendix C.

3   You with me?

4   A.   Uh-huh.

5   Q.   And you see there's three events, or

6   three -- I guess press releases or documents

7   that you associate with Event 296.

8   A.   Yes, I see three documents with

9   Event 296.

10   Q.   And then going back to page 40, this

11   was not one of the events you excluded from your

12   study with respect to consumer product

13   announcements, correct?

14   A.   I think that's correct, yes.

15   Q.   Did you personally review the

16   documents that you've associated with Event 296?

17   A.   I believe so.

18   Q.   Understood them?

19   A.   I believe I did.

20   Q.   The third document, which you have

21   identified as Document 7758. You with me?

22   A.   Uh-huh.

23   Q.   And the headline of that is, "Ripple

24   Blockchain Networks Adds China Payments

25   Provider."

1

2   Do you see that?

3   A.   I do.

4   Q.   Do you know -- why don't we go to that

5 document.

6   This will be Exhibit 8.

7   (Article titled "Ripple Blockchain

8   Network Adds China Payments Provider" was

9   marked Exhibit 8 for identification, as of

10   this date.)

11   Q.   And I'm showing you what I believe is

12 Document 7758, which is an -- an article dated

13 February 7, 2018.

14   A.   Uh-huh.

15   Q.   If you go to the last -- well, let me

16 just read it to you and save a little time. I'm

17 reading to you from this document.

18   The product differs from Ripple's

19 xRapid solution, which, unlike xCurrent, uses

20 the company's custom cryptocurrency XRP.

21   So this is another announcement in

22 which a customer utilized a Ripple-related

23 product that didn't require the use of XRP.

24 Correct?

25   A.   It appears to be.

1

2   Q.   And why didn't you exclude this event

3 from your study if it didn't -- if it announced

4 an event that didn't result in an increased

5 utilization of XRP?

6   A.   Because this is an example of a

7 customer and product announcement. A major

8 payment provider in China joining RippleNet

9 using Ripple's technology strikes me as

10 particularly interesting to know whether XRP

11 prices respond to events of this general type.

12   Q.   And you don't know the answer to

13 whether there was a statistically significant

14 price impact on XRP as a result of this

15 announcement. Correct?

16   A.   This particular event? I don't

17 know -- I don't know the answer to that.

18   Q.   Now, as with this one, you -- certain

19 of the events that you identified had multiple

20 documents associated with them, correct?

21   A.   That is correct.

22   Q.   What methodology did you use to

23 determine whether multiple documents should or

24 should not be associated with a specific event?

25   A.   I read the content of the documents to

1

2   see if they provided substantively similar

3   information.

4   I looked at the dates of the documents

5   to see if they were adjacent in time, if not

6   simultaneous in time, to determine if they were

7   essentially referring to the same event.

8   Q.   And again, this was just your

9   subjective judgment as to whether there was one

10   event or more than one event?

11   A.   It's a -- it's a judgment exercise.

12   In many cases, I think there would be very

13   little controversy. You may perhaps find a case

14   where you think there is some controversy. But

15   generally I think it's fairly straightforward,

16   at least in this set of events, to say that

17   certain documents were essentially talking about

18   the same thing.

19   Q.   And as I understood your answer, other

20   than reading the documents that you have listed

21   in Appendix C, you didn't do any additional

22   research. Correct?

23   A.   Well, again, we -- I -- I looked at

24   the dates of publication. If they were

25   two years apart, that would probably make it

Page 173

1

2   unlikely that they were referring to exactly the

3   same event.

4   If they're on the same day, or a day

5   apart, or maybe two days apart -- so it was a --

6   a -- based on the content of the announcement

7   but also some consideration to publication date.

8   Q.   All right. But that's all information

9   that appears within the four corners of the

10   document, correct?

11   A.   Generally, yes.

12   Q.   My question is, did you look outside

13   the four corners of the document to get more

14   information that it allow -- would allow you to

15   have a more informed judgment about whether a

16   series of documents should be correlated with a

17   single event or multiple events?

18   A.   I can't say that I particularly did

19   more than read the documents to see if they were

20   talking about the same thing.

21   Q.   Can you think of any instance where

22   you did anything to investigate whether

23   documents should be associated with a single

24   event or multiple events, other than reading the

25   documents themselves?

1   ███

2   A.   Just trying to remember.

3   There -- there may have been times,

4   I -- I seem to -- I seem to recall there may

5   have been times when a document might say --

6   this is just a -- this is just a -- an example

7   of type, not a literal quote.

8   Seven banks join RippleNet, and then

9   another document, maybe published the same day,

10   lists seven banks and says, These joined

11   RippleNet. I may have done a little bit of work

12   to make sure that these were talk-- that the one

13   document was talk-- was referring to the same

14   set.

15   There may have been instances like

16   that. I think they were few and far between.

17   Q.   You may have done many things,

18   Dr. ██████   Do you have a specific recollection,

19   as you sit here today, of doing that, of looking

20   beyond the four corners about -- beyond the

21   four corners of the documents that you pulled

22   off the -- the Ripple website to investigate

23   whether they related to one event or more than

24   one event?

25   A.   Yes, I -- I --

Page 175

1   Metz

2   Q.   Which event?

3   A.   I can't tell you which event it was.

4   There was -- there -- I -- I do recall there was

5   an event. There were documents that were

6   separated by a couple of days of publication,

7   and I wanted to see if they were really

8   describing the same thing. I don't remember

9   what the event was.

10   Q.   Other than that investigation as to

11   that one event, do you recall doing that on any

12   other occasion?

13   A.   I don't have a specific recollection.

14   Q.   Could you now go to page 22,

15   paragraph 48(c)?

16   A.   Page 22.

17   Yes.

18   Q.   Can you read for the record the

19   sentence you wrote beginning with the word

20   "First."

21   A.   First, the announcement may

22   substantially repeat a previous announcement. I

23   term such announcements as stale.

24   Second, the nature of the announcement

25   may not have a particular directional

1

2   implication for XRP prices, even assuming the

3   hypothesis of independence is false. I describe

4   such announcements as direction uncertain.

5   Q.   All right. Directing your attention

6   to the events you believe to be stale. Can you

7   tell us what you mean by "stale"?

8   A.   There may be a document published on a

9   certain date that announces some new

10 information, and there may be another document a

11 week later that essentially repeats that

12 information but doesn't appear to be providing

13 new information.

14   Q.   Okay. If we could go to page 3 of

15 Appendix C.

16   A.   Yes.

17   Q.   And directing your attention to

18 Events 11, 12, and 13 in the customer product

19 category.

20   You with me?

21   A.   Yes.

22   Q.   You identify all those events as -- or

23 the document date for all those events as

24 September 24, 2014. Is that correct?

25   A.   The documented date is September 24,

1

2   2014. Yes.

3   Q.   And you didn't exclude any of these

4   three events from your analysis as stale.

5   Correct?

6   A.   Correct.

7   Q.   So all three of these events -- and

8   these are individual events, right? There are

9   three events here?

10   A.   Three events all on the same day, so

11   they get counted once. You can exclude them if

12   you want. Doesn't make any difference.

13   Q.   And that was all part of your analysis

14   that found the correlation between customer and

15   product news and XRP returns. Correct?

16   A.   That single-event day is part of the

17   analysis, yes.

18   Q.   Let's go to what I believe is

19   Document 7594 in Appendix C, which is titled, I

20   believe, Hundred-year-old CBW Bank, one of first

21   U.S. banks to integrate Ripple's

22   transformational money-transfer protocol.

23   You see that? I think this would be

24   Exhibit 9.

25   (Article titled "Hundred-Year-Old CBW

1   ███

2   Bank One of the First U.S. Banks to

3   Integrate Ripple as Transformational Money

4   Transfer Protocol Ripple" was marked

5   Exhibit 9 for identification, as of this

6   date.)

7   A.   7594, one of the September 24

8   documents. Yes.

9   MR. MOYE: Are we marking this as 9?

10   MR. FIGEL: Yes.

11   Q.   You with me, Dr. ███

12   A.   Yes.

13   Q.   The first paragraph, it suggests that

14 CBW Bank continues its pioneering spirit as one

15 of the first U.S. banks to use the Ripple

16 protocol for modern real-time payments between

17 the United States and other countries globally.

18   Do you see that?

19   A.   Yes, I see that.

20   Q.   And this, again, is a press release

21 talking about use of the Ripple protocol?

22   A.   Yes.

23   Q.   What's your understanding of what the

24 Ripple protocol was?

25   A.   Some documents seem to describe it as

1

2   the open-source blockchain technology.   I

3   suppose that's -- that's essentially my

4   understanding of what they mean by Ripple

5   protocol.

6   Q.   Go to the second page. I guess it's

7   on the back of the one you have.

8   A.   Uh-huh.

9   Q.   Can you read the first two sentences,

10   under the heading, About Ripple.

11   A.   Ripple Labs developed the Ripple

12   protocol, which makes transacting as easy as

13   emailing. The San Francisco Bay start-up is

14   funded by Google Ventures on --

15   Q.   I'm sorry. I don't mean to interrupt,

16   but you're reading about Ripple Labs. I

17   would -- about Ripple.

18   A.   I'm sorry.

19   Ripple is an open-source distributed

20   payment protocol. It enables the free and

21   instant transfer and exchange of any type of

22   value, including dollars, yen, euros, and even

23   loyalty points.

24   Businesses of any size can easily

25   build payment solutions -- build payment

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1 ███

2 solutions, pardon me, such as banking or

3 remittance apps, and accelerate the movement of

4 money on Ripple. Ripple enables the world to

5 move value like information moves today. For

6 more information about Ripple, please visit a

7 website.

8   Q.   No mention of XRP, correct?

9   A.   XRP does not appear in that paragraph,

10 no.

11   Q.   Any -- anything you see in Exhibit 9,

12 to suggest that this document would be

13 associated with the increased utilization of

14 XRP?

15   A.   This document describes a bank joining

16 the Ripple protocol. How that might impact XRP

17 prices is an interesting point to study. I

18 include it in a test to see whether there's a

19 correlation, and I found that there was.

20   Q.   So you were aware at the time you were

21 doing your event selection that some of these

22 press releases specifically stated that XRP was

23 not going to be used in the product that was

24 being described. Correct?

25   A.   In some cases, yes.

1

2   Q.   And you elected to include those

3   events in your study, notwithstanding your

4   awareness that they explicitly stated that XRP

5   would not be used.

6   A.   Correct. You might have a hypothesis

7   that XRP prices should not react following such

8   announcements. That's a perfectly valid

9   hypothesis to have.

10   In fact, let's remember that is the

11   null hypothesis of the experiment, is that XRP

12   prices are not going to react following these

13   events. I tested that hypothesis. I was able

14   to reject it.

15   Q.   So if I showed you the other documents

16   that you have correlated with Exhibits 11, 12,

17   and 13 and I showed you that they also didn't

18   involve a product that would require the use of

19   XRP, it wouldn't change the conclusions you're

20   reaching in your report. Correct?

21   A.   No, not at all.

22   Q.   Well, the answer to my -- I had the

23   "correct" question. So the answer is, no, it

24   would the not change --

25   A.   No, it would not change my opinion.

1 █████

2   Yeah.

3   MR. MOYE: Just for clarification, are

4   you making representation that those other

5   documents do not refer to XRP or describe

6   it?

7   MR. FIGEL: Why don't we -- if we

8   want, before I make that representation,

9   let me just double-check.

10   MR. MOYE: Right, because I would ask

11   the same clarification about this document.

12   MR. FIGEL: I'm sorry. Which

13   document?

14   MR. MOYE: I would ask whether you're

15   making that same representation about this

16   document. Exhibit 9.

17   MR. FIGEL: That document, I

18   believe -- this is 9 you're talking about?

19   Well, this document, we can ask

20   Dr. █████

21   Q.   Do you see anything in this document

22 to suggest that the product or the institutions

23 described here, will be using XRP in any of the

24 products?

25   A.   I certainly don't see any -- I don't

1

2   see any statement that they're not. I think

3   somebody might read this and think, if they're

4   using the Ripple protocol, they may very well be

5   using its native digital token, XRP.

6   So I -- I can imagine that some people

7   might read an announcement like this and think

8   that XRP is being used. But it doesn't say --

9   that I can see, it doesn't say whether it is or

10   isn't.

11   But in any event, it wouldn't -- it

12   wouldn't alter my opinion.

13   Q.   All right. So let's go to -- just --

14   I will withdraw my representation so we don't

15   have any confusion about misleading the witness.

16   MR. MOYE: Fine. Thanks.

17   Q.   Let's go to Document 79 -- I'm sorry.

18   My eyes are getting bad, too. I believe it's

19   7595.

20   And that is, I believe,

21   Cross River Bank to integrate Ripple for

22   real-time international payments.

23   Do you see that?

24   A.   I do.

25   MR. FIGEL: We'll mark that as

1   ▮

2   Exhibit 10.

3   (Article titled "Cross River Bank to

4   Integrate Ripple for Real-Time

5   International Payments Ripple" was marked

6   Exhibit 10 for identification, as of this

7   date.)

8   Q.   Have you seen this document before,

9   Dr. ▮

10   A.   I have.

11   Q.   This is a document with the same date,

12   as Exhibit 9, that you have included as a

13   separate event.

14   Do you see that?

15   A.   Yes.

16   Q.   If you recall from Exhibit 9 --

17   withdrawn.

18   What do you understand the substance

19   of the information included in Exhibit 10?

20   A.   I understand it to be substantially

21   similar to Exhibit 9, just a different bank

22   joining the Ripple protocol.

23   I believe there also -- there's an

24   article or a press release from Ripple which I

25   think joins these two things and talks about

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1 ███

2 both of them in the same context. But --

3   Q.   And do you see anything in this

4 document to suggest that the banks or the

5 products that are being described contemplate

6 the use of XRP?

7   A.   Well, I certainly think somebody might

8 draw that inference. If they're joining the

9 Ripple protocol, they might reasonably think

10 that they're going to use its native token. It

11 doesn't say, We will use XRP. And I don't see

12 that it says, We will not use XRP.

13   But again, that's -- it doesn't really

14 have any bearing on my opinion.

15   Q.   Now let's go to Event 13. That's

16 associated with three documents. Is that

17 correct?

18   A.   Yes.

19   Q.   Actually, four documents.

20   A.   Yes, four.

21   MR. MOYE: That's so small. I'm

22   sorry.

23   MR. FIGEL: Yeah, I know.

24   Q.   So the first of these four documents

25 that you correlate with Event 13 have the

Page 186

1

2   headlines, Two U.S. banks are ready to embrace

3   the Ripple protocol allowing instant global

4   money transfers.

5   Do you see that?

6   A.   I do.

7   Q.   Let's -- let me show you what we

8   believe is -- it's 11, but it is the article

9   that says -- yeah, it's 7923, Two U.S. banks are

10   ready to embrace.

11   MR. MOYE: Do you want him to look at

12   it?

13   MR. FIGEL: I think so, yeah.

14   Well, why don't we do -- let me see if

15   I can cut through this.

16   Q.   We have four press releases or four

17   documents that you associate with a single

18   event, correct?

19   A.   Yes.

20   Q.   And we have two other events with

21   documents that you associate with separate

22   events?

23   A.   Yes.

24   Q.   All occurring at or about the same

25   day?

1

2   A.   On the same day. I think that's --

3   Q.   Well --

4   A.   -- an important point.

5   Q.   Some are the 24th, some are the 25th?

6   A.   But the event day, I believe I assign

7   9/24 to all.

8   Q.   So why do you -- why did you decide to

9   treat those various press releases as different

10   events?

11   A.   Since they're all on the same event

12   date, it's immaterial how I do that. I could

13   have grouped them all together as -- and given

14   them one event number, it wouldn't make any

15   difference.

16   One document talks about CB -- or

17   Cross River Bank, the other talks about

18   CBW Bank, and then you have a series of

19   documents that talk about both.

20   They all came out basically on the

21   same day and maybe one came out the following

22   day. The event date is September 24. We could

23   call that one event, we could call it

24   ten events.

25   Q.   How do you know, then, which of the

1

2   various announcements are associated with the

3   statistically significant price return on that

4   day?

5   A.   Well, I don't know that there is a

6   statistically significant price return on that

7   day. But in any event, it doesn't make any

8   difference to me which one of them is.

9   Recall that Ripple Labs has to take

10   the position, or has taken the position, that

11   none of them can be driving the price. Whether

12   it was the C-- again, assuming there was a

13   significant return on that day, which I -- I'm

14   not conceding is true, I don't know if it's

15   true, but even if it were true, it doesn't make

16   any difference to my opinion whether that was

17   driven by the Cross River Bank joining or the

18   C-- I keep saying CBW. Yeah, CBW Bank joining.

19   It -- it wouldn't make any difference

20   to my opinion if it was a little of one, a

21   little of the other, a little of both.

22   Ripple Labs has taken the position that there

23   would no association, it couldn't be either one.

24   So it -- it doesn't matter to my analysis which

25   one it is.

1

2   Q.   So if I understand your answer, all

3   your methodology is seeking to prove is that on

4   one day and one action by Ripple Labs, if there

5   is a correlation, that you have disproved the

6   hypothesis you're seeking to disprove; is that

7   correct?

8   A.   No, that's not correct at all.

9   Q.   Well, you just said, if I understood

10   it right, that what you understood Ripple to be

11   saying is that no Ripple action ever had an

12   impact on the price of XRP.   Correct?

13   A.   I understand Ripple disputes that the

14   XRP market looks to them to create value, and

15   they dispute -- also some of the expert reports

16   they submitted in this matter dispute that

17   there's any connection between Ripple Labs and

18   XRP prices.

19   Q.   And so what exactly is it that you

20   believe your study is relevant to with respect

21   to the issues you just identified?

22   A.   I'm testing that hypothesis.

23   Q.   Well, which hypothesis?   You named

24   about five.

25   A.   I think I've named one.   I'm testing

1 ████

2   the hypothesis of whether news about Ripple's

3   actions and news about Ripple is correlated with

4   significant XRP price increases.

5   That is the essential statistical and

6   economic analysis of my report. And I find,

7   through a variety of measures, that the

8   hypothesis that they are independent can be

9   rejected at any reasonable degree of

10   significance.

11   Q.   And how many days do you have to find

12   a correlation between a Ripple action and a

13   price impact on XRP for you to reach the

14   conclusion that you reach?

15   A.   I -- I'm not aware of a bright-line

16   number. We can -- you know, some categories I

17   test. For instance, the milestone category has

18   as few as -- what is it, six or eight events. I

19   think it's eight.

20   That is actually a large enough sample

21   to test.

22   And then, of course, other categories

23   have many more events. So I don't have a

24   bright-line number in mind.

25   MR. FIGEL: I can't remember what time

1   ██

2   we got on the record.

3   MR. MOYE: Close to 1.

4   MR. FIGEL: Close to an hour, so

5   should we take a break?

6   MR. MOYE: Sure.

7   THE VIDEOGRAPHER: We're going off the

8   record at 2:25 p.m.

9   (Recess from 2:25 to 2:40.)

10   THE VIDEOGRAPHER: We're back on the

11   record at 2:20 [sic] p.m.

12   Q.   All right. Dr. ██ if you could go

13   to your -- Exhibit 1, your report, and go to

14   page 20, paragraph 45.

15   A.   Yes.

16   Q.   You look in the middle, paragraph 45,

17   you write, If there is a statistically

18   significant price reaction, and if certain

19   conditions can be established, then one might

20   conclude the market reacted significantly to the

21   announcement.

22   Correct?

23   A.   Yes, I see that.

24   Q.   And in Footnote 57, you describe the

25   conditions that need to be established.

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1

2   Correct?

3   A.   I -- I don't intend it to be an

4   exhaustive list, but it's certainly some of the

5   conditions. Yes.

6   Q.   And -- and one of them, in

7   romanette i, is, There is no other confounding

8   news that day which might explain such movement.

9   Correct.

10   A.   Correct.

11   Q.   What's confounding news?

12   A.   Confounding news is generally

13 information released on or about the same time

14 as the -- let me back up.

15   There's an event that you're

16 interested in. Confounding information would be

17 news released on or about the same time, which

18 might reasonably be expected to impact the

19 security price that you're questioning.

20   So a canonical example might be

21 ABC Enterprises issues a corrective disclosure

22 on January 1 and the stock price drops.

23 Everybody agrees that the stock price drops.

24 People want to say, Well, the stock price

25 dropped because of the corrective disclosure.

1

2   And somebody comes along and points

3   out, Well, wait a minute, ABC Enterprises was

4   also named as a defendant in a class action suit

5   on the very same day, so how do you know if it

6   was the corrective disclosure or the lawsuit.

7   That would be an example of

8   confounding information.

9   Q.   And so if there are compounding events

10 present on a given day in which there's a

11 statistically significant price impact, that

12 would undermine the confidence that you could

13 have that one event or the other caused that

14 price impact. Correct?

15   A.   It -- it could. Yes.

16   Q.   And the presence of confounding events

17 would undermine the reliability of any finding

18 you made in this case through your event study,

19 correct?

20   A.   Potentially.

21   Q.   Well, in your own judgment do you

22 believe it was necessary to establish that there

23 was no confounding news on an event day, with

24 whatever the Ripple event that you identified

25 was, before you could reach a reliable opinion

1

2   that the market for XRP reacted in a

3   statistically significant manner to the Ripple

4   news event?

5   A.   Yes, I think one has to take steps to

6   rule out the likelihood of confounding

7   information before drawing any sort of causal

8   inference from a correlation result.

9   Q.   And for the three-day event window

10 that you use primarily in your study to support

11 your opinion, would it also be necessary to rule

12 out confounding events on each of those

13 three days?

14   A.   One would -- one has to consider the

15 possibility of confounding information, I agree.

16   Q.   Okay. What steps did you take to

17 ensure that the analysis in your -- withdrawn.

18   What steps did you take to satisfy

19 yourself that there were no confounding events

20 on any of the Ripple news event days that you

21 considered?

22   A.   So I took a number of steps.

23   So this might be one of those long

24 answers.

25   Q.   If you must.

1

2   A.   So let's begin by thinking about

3   what -- what this confounding information might

4   be. It might be news that impacts the digital

5   token market broadly.

6   Well, we can rule that out. We can

7   rule that out because 18 of the 20 regression

8   models that I consider control for other digital

9   token returns such as bitcoin.

10   So if it's simply that XRP prices are

11   going up at the same time that the -- the

12   broader cryptocurrency market is going up, we

13   can rule that out as a possible explanation.

14   Another type of confounding

15   information, the example that I gave earlier,

16   is -- is company-specific information.

17   Well, we can rule that out, too.

18   Because, of course, Ripple Labs has taken the

19   position that such information does not exist as

20   a matter of logical possibility. Because

21   they've said nothing that -- there --

22   Ripple Labs is independent of the XRP market, so

23   there's nothing that could be announced about

24   Ripple Labs that should move XRP price.

25   So we can rule that out as a

1 █████

2   possibility.

3   What we're left with is speculating

4   that there might be something which wasn't

5   specific to Ripple Labs, didn't impact the

6   broader market, but impact the XRP market

7   uniquely. Okay. Let's consider that.

8   This would have to be something, first

9   of all, that's only good news, because,

10   remember, we look for -- one of the robustness

11   checks that I do is to see if there's a

12   correlation between these event days and

13   negative returns. And there is no correlation.

14   So this has to be good news, unique to

15   the XRP market.

16   Okay.

17   It has to be good news, unique to the

18   XRP market, that Ripple Labs chose not to

19   discuss or link to or reference in any way,

20   among 700 articles on its news page.

21   Okay.

22   It would have to be good news for XRP

23   markets that, on the other hand, didn't impact

24   the number of XRP accounts, because remember,

25   that is a control variable in half of the

1

2   regression analyses that I do.

3   It would have to be something that is

4   released exactly on the day in question.

5   It can't be the second day, and it

6   can't be the third day. And the reason I say

7   that, again, is one of the robustness checks

8   that I did was to look at that one-day event

9   window, and we continue to get the statistical

10   result that we've been discussing all along.

11   It couldn't have been something that

12   came out before the news day in question. How

13   do I know that? Because I looked a few days

14   before the news event, and there is no

15   correlation between these events and XRP price

16   increases.

17   So I think it -- it's -- it becomes so

18   implausible to suggest that this hypothetical

19   confounding news could be driving these results.

20   I think that possibility can be dismissed.

21   Q.   You've referred several times to what

22   you believe to be Ripple's position that no

23   action by Ripple had any impact on the price of

24   XRP. What's your basis for that?

25   A.   That's my understanding from some of

1   ▮▮▮▮

2   issues that are being considered in this

3   litigation. That's, of course, the position

4   that Dr. Ferrell has taken, and his experts

5   report.

6   I believe that was position taken in

7   Ripple Labs' Wells submission that I looked at

8   some time ago.

9   That's just my general understanding,

10   that they maintain they are independent of the

11   XRP market.

12   Q.   So other than the inferences you draw

13   from the Ferrell report, is there anything in

14   writing that you are -- that you can identify,

15   that has caused you to reach that opinion?

16   A.   I -- I read the complaint some time

17   ago. I -- I don't remember if it's specifically

18   in there.

19   I think in some of the deposition

20   testimony that I reviewed, executives of

21   Ripple Labs are asked repeatedly about their

22   impact on XRP prices, and they insist that

23   there's no connection.

24   I -- I really didn't think that this

25   was a contentious or controversial point.

1

2   Q.   Can you recall which depositions you

3   read that caused you to have that understanding?

4   A.   I believe -- I mean, I know the

5   depositions were lengthy.

6   I think there's discussion on XRP and

7   Ripple Labs and price in the deposition of

8   Mr. Garlinghouse and Mr. Larsen and

9   Mr. Schwartz, and -- maybe Monica Long and

10   probably others. I don't -- I don't claim to

11   have a photographic memory of which depositions

12   include which.

13   I believe that if we review the

14   deposition transcripts, we'll find questions and

15   answers on this subject.

16   Q.   As you sit here today, other than the

17   Wells submission, you can't think of a specific

18   transcript or document in which Ripple Labs has

19   stated that no action by Ripple would have any

20   impact on the price of XRP.

21   A.   I -- again, I would point to the

22   deposition transcripts. At least the officers

23   of Ripple Labs have said statements to that

24   effect, I believe.

25   Q.   And if you were wrong about that

1

2   assumption, would that change the results of

3   your analysis?

4   A.   No.   That would simply mean if

5   everybody wants to stipulate that Ripple --

6   things Ripple Labs does moves the market, then I

7   suppose we would all stipulate to that.

8   Q.   I'm going back to the steps you took

9   to identify confounding events.

10   As I understood your answer, you did

11   not seek on a particular day to identify whether

12   there were actions or events that could have had

13   an impact on the price of XRP. Is that correct?

14   A.   No, I don't think that's correct.

15   Again, I took -- I took a number of steps that

16   I've described, so that with -- with -- so that

17   I could reasonably rule out the possibility that

18   the statistical results I was observing were

19   being driven by confounding events outside of

20   the new set that I'm studying.

21   Q.   Did you do any investigation or

22   research to determine whether there were any

23   other events that occurred on a day in which you

24   found a overlap between a statistically

25   significant price return on XRP and the 105

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1 ███

2 Ripple events that you tested for to see whether

3 there was anything else happening in the world,

4 in the market for -- that could have had an

5 impact on the price of XRP?

6 A. Well, again, there was no need to do

7 what you're suggesting. It couldn't -- it

8 couldn't be a factor that impacts the -- the

9 digital token market broadly. I don't have to

10 go look for it. It can't be the case. It can't

11 be something specific to Ripple Labs. I don't

12 have to look for it. It can't be the case as a

13 logical possibility.

14 And I have enough statistical controls

15 to -- there seemed no point to this sort of

16 exercise that you're describing.

17 Q. So you have such confidence in your

18 economic modeling that you can rule out with

19 certainty, under oath, that there's not an event

20 that occurred on a day in which there was -- a

21 confounding event that occurred on a day in

22 which you found a statistically significant

23 price impact -- price return. Correct?

24 A. No, I didn't say that.

25 Could you find and -- could you find a

1

2   particular day where you want to point to

3   something and argue that it might be

4   confounding? And we could have a discussion

5   about it.

6   I am confident that the statistical

7   result that the null hypothesis of independence

8   can be rejected, I do not believe that that

9   result would change through any exploration of

10   confounding news.

11   Q.   You would agree, though, that if there

12   was confounding news on an event day with a

13   statistically significant price return of XRP,

14   that that would undermine the reliability of

15   your opinion. Correct?

16   A.   Again, no. We'd have to see -- no.

17   We'd have to see what kind of news we're talking

18   about. I mean, we're speculating about things

19   that might be. We'd have to review it, what it

20   is. We would have to demonstrate that news of

21   that type does move XRP prices.

22   There would be an awful lot of work

23   that we would have to do before we could even

24   determine that the news actually was

25   confounding, let alone that it had any bearing

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1   ███

2   or any impact on my overall results and overall

3   conclusion.

4   Q.   There were 105 days in which there

5   were Ripple events. Correct?

6   A.   One of the sets of categories I study

7   is based on 105 days, yes.

8   Q.   And on 24 of those days, you found a

9   coincidence with a statistically significant

10   impact on Ripple returns. Correct?

11   A.   According to one model, yes.

12   Q.   And just so the record is clear, you

13   took no steps with respect to those 24 days to

14   do any sort of investigation or review to

15   determine whether there was an event that

16   occurred on that day?

17   A.   No. Again, I took a number of steps.

18   May not like the steps that I took. But I took

19   a number of steps to make sure that these

20   results were not being driven by confounding

21   information.

22   Q.   Well, the steps you took were the ones

23   described, which were effectively built into the

24   models that you created. My question is a

25   different one. Did you go on Lexis or Nexis on

1

2   a day in which there was a -- on one of those 24

3   days to see, is there anything else happening

4   that might explain this result?

5   A.   The steps that I took are in some

6   cases matters of model design; in some cases

7   they are matters of variations of model runs to

8   check alternative explanations, such as the

9   possibility of confounding news.

10   I'm satisfied that these results are

11   not being driven by hypothetical, speculative

12   possibilities of maybe something else.

13   Q.   Let's go back to Exhibit 4, if -- I'm

14   sorry.

15   It's Exhibit 4, which is the

16   Litigation Services Handbook.

17   And if you look -- we are going back

18   to the paragraph we looked at before. And if

19   you could just read the -- the -- the fourth of

20   the four conditions that need to be present for

21   an event study to be able to make the kind of

22   correlations that you claim to have made.

23   MR. MOYE: Is this 19.2 at A?

24   MR. FIGEL: Yes, and then sub 4.

25   MR. MOYE: Thanks.

1   ███

2   A.   It is possible to isolate the effect

3   of the news from market, industry, and other

4   firm-specific factors simultaneously affecting

5   the firm's stock price.

6   Q.   Do you agree with that?

7   A.   Do I agree with -- what are you asking

8   me to agree with?

9   Q.   That that is a condition that must be

10   present in order for an event study to reveal

11   the effects of an event on -- it talks about

12   future cash flows, but I assume you would agree

13   that price impact would also follow from -- from

14   the -- the correlation that the author is making

15   here.

16   A.   If the purpose of the study is to

17   assign causality to a particular event, then one

18   needs to take steps to rule out the possibility

19   that it might have been some other event.

20   Q.   Did you identify any day in which --

21   any day of the 24 -- let's just try to keep the

22   models and the studies clear.

23   Of the 24 days in the study that you

24   described in paragraph 100, did you find any

25   confounding event?

1

2   A.   Please define what you mean by

3   "confounding event" when you ask that question.

4   Q.   I mean what you said, which was an

5   event -- well, let's just make sure the record

6   is clear.

7   Why don't you define, for the purpose

8   of answering my question, what you understand

9   confounding event to be.

10   My question is, on any of the 24 days

11   in which you found the coincidence of a -- a

12   price impact and a Ripple news event, did you

13   identify a confounding event on that day?

14   A.   As I would define it, no.

15   There is -- for example, one of the

16   events simultaneously lists, I think it's

17   Series B funding along with new product, new

18   customers on RippleNet. I don't consider that

19   confounding.

20   I -- it's not necessary for me to

21   assign causation to one or the other. It's

22   enough that prices moved around that

23   announcement.

24   So the answer to your question is, no,

25   I didn't find anything that I would consider to

1

2   be confounding.

3   Q.   What factors, if any, in your model,

4   other than account growth of -- of XRP accounts,

5   do you contend are unique to XRP?

6   You understand my question?

7   A.   I think that I do.

8   Well, in half the models that correct

9   for serial correlation, we have the lagged

10   return of XRP itself, on the right-hand side of

11   the regression, I suppose that would qualify.

12   Q.   Anything else?

13   A.   No, there's nothing -- there's no

14   other right-hand side control factor that is

15   unique to XRP, besides its account growth and

16   its lag return.

17   Q.   And just so the record is clear, I

18   mean, it's clear what you've testified to with

19   respect to what you feel you've done to identify

20   and rule out confounding events.

21   I just want to ask you whether there

22   are additional steps that you did or did not

23   take. You with me? In other words, I'm not

24   looking for you to repeat what you've done. I'm

25   asking a specific -- I'm going to ask you a

1

2   series of specific questions about whether you

3   took particular steps.

4   A.   Okay.

5   Q.   All right. And let's just -- for the

6   purposes of keeping the record clear, we're

7   going to talk about the 24 days of confluence

8   that you identified in paragraph 100 of your

9   report. You with me?

10   A.   All right.

11   Q.   On any of those days, did you do a

12   news review to see whether there was any news

13   about the cryptocurrency markets generally?

14   A.   Yes.

15   Q.   What specifically did you do to look,

16   on that particular day, for news about the

17   cryptocurrency markets?

18   A.   So on some days which were -- which

19   had statistically significant price returns

20   associated with them, I directed my team to take

21   some extra steps to make sure that certain facts

22   about those days were known.

23   Some of those steps included

24   LexisNexis searches around certain keywords

25   related to XRP.

1

2   Q.   Anything else?

3   MR. FLUMENBAUM: Would you lean up,

4   please?

5   THE WITNESS: Sorry, I thought the

6   microphone was working.

7   A.   I'm sorry, what's the question?

8   Q.   Anything else?

9   A.   I don't think anything uniquely to

10   those days. Again, we -- we -- I want to be

11   careful. We checked the UTC -- I'm trying to

12   remember if we checked the UTC publication date

13   on the host web pages for every day or only days

14   associated with statistically significant

15   returns, and I think it may have been the

16   latter. I -- I'm fairly sure it was the latter.

17   So that means we -- we also would have

18   clicked on the web page hosting the document,

19   looked at the -- now I'm going to get this

20   wrong, but the HTML code or the XML code or --

21   some computer scientist is going to tell me I

22   got the wrong term -- but the underlying script

23   for hosting the web page to look for the -- the

24   UTC date stamp for the web page, and did

25   Internet searches to see -- to look for other

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1

2   information around these events and XRP.

3   That's what I can recall doing.

4   Q.   What was the work product that was

5   generated in connection with these efforts to

6   conduct Internet searches on the days in which

7   there was the event?

8   A.   I don't know that it necessarily led

9   to the creation of work product, if analysts

10   were searching for keywords and not finding

11   results. I don't necessarily know that work

12   product was created.

13   Q.   So was there any document that you or

14   your staff has that would reflect the efforts

15   that you claim were made to determine, based on

16   an Internet search or a LexisNexis search on one

17   of those 24 days, as to whether there was

18   confounding events?

19   A.   Well, I think in my report I discuss

20   the steps we took, for instance, to carefully

21   date the events, and I think in my report I also

22   mention conducting Internet searches around key

23   dates.

24   Q.   Can you show me where in your report

25   you reported that?

1   ■■■

2   A.   I'm happy to, if I can go through it.

3   (Witness reviewing document.)

4   MS. KIM: Paragraph D, Appendix 18.

5   THE WITNESS: Right, Appendix D.

6   Thank you very much.

7   A.   We talk about how we search for UTC

8   dates. And part of that process was searching

9   for keywords around -- around those dates.

10   Q.   Can you point to me the paragraph or

11   the portions?

12   A.   Yes, it's Appendix D, paragraph 18.

13   Q.   All right. As I read paragraph 18,

14   that looks to confirm the dates of events.

15   A.   Yes, but it also refers to Factiva,

16   LexisNexis and Internet searches around keywords

17   related to the event.

18   Q.   To determine if the event was reported

19   earlier through some other news channel. It's

20   the same event. I'm asking for a search for

21   confounding events.

22   A.   Yes, but in -- in conducting a

23   LexisNexis and Internet search with keywords

24   related to XRP, confounding events could very

25   possibly have come up. If they had come up, I

1

2   would have noted -- we would have taken note.

3   No confounding events came up.

4   Q.   The sentence you wrote, Dr. ████   is

5   that you conducted these various Internet

6   searches to determine if the event was reported

7   earlier through some other news channel. So

8   you're looking for stale news there.

9   A.   Correct. I mean, that -- that was the

10   principal motivation for doing it, but your

11   question was if we did other research around the

12   24 days. The answer is yes. And you asked if

13   we did -- if we did Internet searches, the

14   answer is yes.

15   Q.   Well, let me be clear about my

16   question to make sure we have a clear record

17   here.

18   Did you do Internet searches, or any

19   other searches, in an attempt to identify

20   confounding events on the 24 days in which --

21   that we've been talking about?

22   A.   We -- I did not do additional searches

23   beyond what's described here for the purpose of

24   searching for confounding events.

25   I was satisfied with the statistical

1   ███

2   properties and analytical methods that I adopted

3   and didn't feel that such efforts were

4   necessary.

5   Q.   So the sentence you just identified as

6   conducting Internet searches was not for the

7   purpose of identifying confounding events on any

8   one of those 24 days. Correct?

9   A.   It was not for that purpose, it may

10 have had that effect. It was for the purpose of

11 making sure that we dated events correctly.

12   Q.   So you didn't direct your staff, and

13 you didn't personally, conduct any Internet or

14 other searches in order to determine whether

15 there were confounding events on any of the

16 24 days that we're talking about?

17   A.   No. Again, it wasn't necessary.

18   Q.   Based on your experience, does the

19 daily trading volume of financial -- of a

20 financial instrument on a given day have an

21 impact on the market price of that instrument on

22 that day?

23   A.   That's a -- that's a difficult

24 question. And I -- I don't know that there's a

25 settled answer in the literature about the

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1

2   relationship between volume and price. I don't

3   know that I have a view on the relationship

4   between volume and price.

5   I don't think I -- I would say that

6   that's not settled.

7   Q.   Well, have you -- are you aware of

8   studies that look at price discovery of common

9   stock on public -- public exchanges?

10   A.   Generally, yes.

11   Q.   And isn't it a fact that those studies

12   generally suggest that more thinly traded stocks

13   are more volatile and more price sensitive to

14   news?

15   A.   I would agree that there is a general

16   result that volume may relate to volatility,

17   within some thresholds perhaps. But not

18   necessarily on the level of price.

19   Q.   Well, isn't volatility a proxy for --

20   A.   No.

21   Q.   -- price movement?

22   A.   For price movement but not for the

23   level of price. The price is a hundred dollars,

24   the price is a hundred dollars, if there's a lot

25   of volume or a little volume.

1   ███

2   Could that price fluctuate more or

3   less depending on the depth of the volume?

4   Perhaps.

5   Those are different questions.

6   Q.   Well, then, do you agree with me as a

7   general proposition, financial instruments that

8   are more thinly traded are more volatile?

9   A.   As a general proposition, I think

10   that's consistent with empirical findings.

11   Again, there may be exceptions here or there.

12   Q.   Any reason that that would not carry

13   over to the market for digital assets?

14   A.   I -- I have no reason to think that

15   digital assets are necessarily different in that

16   respect.

17   Q.   Now, earlier you testified about

18   bitcoin essentially being the big whale in the

19   cryptocurrency market. Is that a fair lawyer

20   summary?

21   A.   I would say that that's a fair

22   summary.

23   Q.   And it follows that a digital token or

24   asset like lumens has less trading volume than

25   bitcoin on a given day.

1

2   A.   Not having specifically looked at it,

3   that would certainly be my expectation.

4   Q.   And do you have a view as to whether

5   the trading volume of XRP was more or less than

6   the trading volume of bitcoin?

7   A.   Again, my expectation is that on most

8   days that you would want to look, you would

9   probably find the trading volume was less.

10   Q.   What about Ether?   Same question,

11   relative to bitcoin?

12   A.   Again, I would expect it would be less

13   than bitcoin on any day you select at random.

14   Q.   So with respect to an event that would

15   apply generally to cryptocurrencies, would you

16   expect to see a different price impact on lumens

17   or Ether as a compared to bitcoin?

18   A.   I -- I don't know.   I just -- I

19   just -- it would depend on the event.

20   I don't know.

21   Q.   Well, a more thinly traded financial

22   instrument responding to the same news,

23   presumably, based on what you said, would be

24   more volatile, correct?

25   A.   More volatile, I mean if -- if China

1

2   announces that it's shutting down the digital

3   token market, you might expect that that would

4   negatively impact almost all digital tokens.

5   Q.   And would the price change be the

6   same -- would you expect the price change to be

7   the same for all digital tokens?

8   A.   Certainly not. Bitcoin is trading at

9   tens of thousands of dollars per token, and most

10   tokens are trading at a fraction of a penny per

11   token; therefore, the price change would almost

12   certainly not be the same. The return may not

13   be the same, but there's no particular reason to

14   think it would be identical.

15   Q.   And where would you expect to see

16   larger percentage changes? You call it price

17   return.

18   A.   I -- I don't know. I don't have a

19   prior -- and I don't -- it would depend on the

20   news. I don't know.

21   Q.   That was something that you could

22   have -- withdrawn.

23   There are economic empirical models

24   that allow an economist to test for the impact

25   of trading volume on price. Correct?

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1   ███

2   A.   Yes. Such models exist.

3   Q.   And you didn't incorporate any of

4   those models into your regression analyses in

5   which you were estimating the return of XRP

6   based on the models that referred to bitcoin,

7   Ether, and lumens, correct?

8   A.   I generally followed the accepted

9   methodology and peer-reviewed academic

10   literature and applied similar regression models

11   you'll find there.

12   No, I did not incorporate a factor

13   related to trading volume.

14   Q.   And the same is true for XRP, correct?

15   A.   Well, all of these are models of XRP.

16   Q.   No. I'm talking about when you were

17   using -- let's just break it up into two pieces.

18   You have your 20 models or so that show each

19   model and what the components of each model

20   were, correct?

21   A.   Correct.

22   Q.   And in none of those models did you

23   include reference to the trading volume of any

24   of those digital assets. Correct?

25   A.   Correct. Trading volume not a control

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1

2 factor in any of my models, as it is not a

3 control factor in peer-reviewed event studies

4 related to crypto markets.

5   Q.   And similarly, when you were measuring

6 the price impact of XRP, you didn't consider the

7 volume of XRP that was traded in a given day,

8 correct?

9   A.   I did not consider the volume. No, I

10 did not.

11   Q.   And why not?

12   A.   Following accepted methodology, it's

13 not typically included in an event study model

14 of the type that I'm doing.

15   What the -- one concern is that, for

16 instance, volatility, generally moves over time.

17 That's a concern. And that's one of the reasons

18 that researchers, myself included and the

19 researchers in the literature that I cite to,

20 use what are called rolling estimation windows,

21 precisely to allow changing volatility and

22 changing relationships, between returns and

23 control factors.

24   That's -- that's a common methodology

25 for addressing these sorts of concerns, and

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1   █████

2   that's what I did.

3   Q.   Show me where in your report you make

4   reference to rolling estimation windows, to

5   account for changing volatility and changing

6   relationships.

7   A.   All right. I'll start Appendix D this

8   time.

9   (Witness reviewing document.)

10   A.   Appendix D, paragraph 10.

11   Q.   Other than paragraph 10, do you

12   describe in any other place in your report what

13   steps you took to address changes in volatility

14   and change in relationships over time?

15   A.   Well, section -- changing

16   relationships over time is the subject of

17   Section 7 of my report?

18   So Section 7 is entirely devoted to

19   documenting changing relationships between XRP

20   and at least bitcoin and Ether, just to make the

21   point that relationships change over time.

22   I have to flip back to my earlier

23   methodology section to see if I relate the

24   rolling window specifically to volatility. Of

25   course, I discuss rolling windows.

1

2   (Witness reviewing document.)

3   A.   So I haven't read it yet, so I --

4 let's see if it talks about volatility. But

5 paragraph 42 and the footnotes there, 51 and 52,

6 I'm just reading them.

7   Footnote 51, A well-accepted method

8 for performing the event study is to estimate a

9 regression model over some period of time to

10 quantify typical relationships.

11   That -- that establishes the -- the --

12 the commonality of the six-month estimation

13 period. Footnote 52 in my analysis, the

14 estimation window, i.e., the 180-day window used

15 to estimate the regression, will change with

16 different dates of interest. This is typically

17 referred to as a rolling estimation window since

18 the estimation is rolled forward for each

19 subsequent date of interest.

20   By using a rolling estimation window,

21 I'll allow for the relationship between the XRP

22 prices and the explanatory factors as well as

23 the volatility of the random factor to change

24 over time. Use of a rolling model to account

25 for changing volatility and evolving

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1

2   relationships among factors is often applied and

3   is accepted in peer-reviewed literature. See --

4   and then there are various citations.

5   Q.   Anything else?

6   A.   I'm sorry?

7   Q.   Anything else?

8   A.   Possibly, but I don't think so. I

9   imagine that those are the only places I discuss

10   it.

11   Q.   In Appendix B to your initial report,

12   Exhibit 1, you list the complaint filed by the

13   SEC in this case as one of the documents that

14   you considered. Is that correct?

15   A.   Strictly documents relied upon, but

16   yes.

17   Q.   Did you read the complaint?

18   A.   I did.

19   Q.   How many times?

20   A.   I don't know.

21   Q.   Did you understand it?

22   A.   I -- as a layperson reading a legal

23   filing, I would like to think I understood it as

24   well as a layperson would.

25   Q.   Do you understand that the SEC

1

2   contends that the opinions that you reached in

3   your initial report support the allegations in

4   the complaint?

5   A.   I'm sorry. Your question is -- do

6   I -- do I understand that -- I'm sorry. Could

7   you repeat the question.

8   Q.   Do you understand that the SEC

9   contends that the opinion reached in your

10 reports support the allegations in the

11 complaint?

12   MR. MOYE: It's a yes-or-no question,

13   right? I'm going to object to the extent

14   you're asking for work product.

15   Q.   I'm not asking you about

16 communications with counsel. I'm asking for his

17 understanding about whether the SEC is

18 sponsoring his opinion in support of its

19 theories as outlined in the complaint.

20   A.   I would say that -- certainly, yes, in

21 the sense they asked me to conduct the study and

22 they're submitting my expert report as part of

23 their proceedings. Beyond -- I mean, beyond

24 that, I can't say.

25   Q.   And you read the report before you

1   ███

2   crafted your methodology, correct?

3   A.   I assume you mean I read the

4   complaint?

5   Q.   I'm sorry. Yes. Read the complaint.

6   A.   Yes, I read the -- reading the

7   complaint was one of the very first things that

8   I did.

9   Q.   Okay. What's your understanding of

10 the violation of law alleged in the complaint?

11   A.   I don't know.

12   MR. MOYE: Object to the extent you're

13   asking for a legal conclusion.

14   Q.   And just so Mr. Moye can continue to

15 have a relaxed afternoon, I'm not asking you for

16 communications you had with counsel for the SEC.

17   A.   Right. But, I mean, I'm not a lawyer.

18 I'm not -- I'm not qualified to offer a legal

19 opinion.

20   Q.   I'm not asking for a legal opinion.

21 I'm asking for your understanding about what the

22 violations alleged in the complaint are.

23   A.   Well, answering as just a layperson,

24 I -- my understanding is the SEC believes that

25 XRP should be classified as an investment

1

2   contract, and certain requirements that I don't

3   fully understand follow therefrom.

4   Q.   Okay. And, again, I'm asking for your

5   understanding. What is your understanding as to

6   why the opinions that you reached support the

7   SEC's contention that XRP, or transactions in

8   XRP, are investment contracts?

9   MR. MOYE: Same objection. Work

10   product.

11   A.   I just -- I'm -- I -- again, I'll say

12   it again. I'm not a lawyer. I'm not qualified

13   to offer a legal analysis.

14   I was asked to investigate whether

15   there's -- whether actions or news of actions by

16   Ripple Labs impacts XRP prices. I conducted the

17   best analysis that I could, and I found that

18   there is overwhelming evidence that it does.

19   That's -- that's -- there it is.

20   Q.   Have you read the Supreme Court's

21   opinion in Howey -- in SEC versus W.J. Howey

22   Company?

23   A.   No, I have not.

24   Q.   Are you familiar with the Howey test?

25   A.   Broadly familiar with it, yes.

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1

2   Q.   What's your understanding of it?

3   A.   Well, as a layperson, just

4   recollecting what I think I understood, the

5   Howey test describes an investment contract as

6   a -- a -- an investment in a common enterprise

7   with an expectation to earn profit from the

8   efforts of a third party or promoter or

9   something like that.

10   Q.   And are you aware, generally, that

11   courts apply the Howey test to determine whether

12   a contract, scheme, or transaction, qualifies as

13   an investment contract under the federal

14   securities laws?

15   A.   Again, I'm not a lawyer, I -- I'm not

16   familiar with the law or the case law or the --

17   the legal issues.

18   I do recall the Howey test being

19   mentioned in the complaint. I assume it is

20   germane to the discussion, but that's just my

21   lay understanding.

22   Q.   You write, in paragraph 12A, that

23   Using a well accepted event study methodology, I

24   find statistically significant evidence that XRP

25   prices react to news about Ripple's actions.

1   ███

2   Do you see that?

3   A.   Yes.

4   Q.   And are you aware that the Howey test

5   requires proof that an offeree makes -- the

6   question in the Howey test is whether an offeree

7   makes an investment in a common enterprise and

8   is led to expect profit solely or primarily as a

9   result of the efforts of others.

10   MR. MOYE: Objection.   Calls for legal

11   conclusion.   Very explicitly.

12   A.   So I'm sorry, what is your question?

13   I mean, I recognize those words when the Howey

14   test is being described.

15   Q.   Well, what's your understanding, from

16   an economic perspective, of what it means for

17   the price impact on an asset to come solely or

18   primarily from a person or entity?

19   A.   As an economist, I don't think those

20   words have very much meaning at all.

21   Very few things, speaking as an

22   economist, could be said to derive solely from

23   the efforts of one person.

24   The -- the stock price of

25   XYZ Enterprises does not depend solely on the

1 ████

2   efforts of XYZ Enterprises. So as an economist,

3   I -- I'm not quite sure what meaning or

4   significance I would attach to those words.

5   I'm sure they're well defined legally,

6   but as an economic matter, I -- I don't think

7   it's clear what those words would mean.

8   Q.   So as a result, you didn't attempt, in

9   your event study methodology, to answer the

10   question whether offerees or holders of XRP were

11   led to expect any increase in the value of their

12   XRP based solely or primarily on the efforts of

13   Ripple. Correct?

14   A.   Since that's not an economic question,

15   I did not conduct an economic analysis of such a

16   question. I conducted an analysis which

17   demonstrates that Ripple Labs -- some of the

18   things Ripple Labs does moves XRP prices.

19   Q.   And your methodology didn't rely on

20   any information about the expectations of XRP

21   holders, correct?

22   A.   That is correct. I -- I don't know

23   the motives of people who buy XRP. That has no

24   bearing on my analysis.

25   Q.   And your methodology didn't seek to

1   ███

2   answer the question whether XRP price returns

3   were caused solely by the actions of Ripple.

4   Correct?

5   A.   Yeah, I would -- I would say that that

6   is not a question that an economist could

7   answer, whether something is due solely to

8   something else.

9   In -- in the field of economics, I --

10   I'm hard pressed to think of any example of

11   anything that is due solely to something else.

12   If Party A and Party B make an exchange, Party A

13   and Party B are involved, as an economic matter.

14   Again, legally, I mean, perhaps it's a

15   well-defined term.

16   Q.   So the answer to my question is your

17   methodology did not seek to answer the question

18   whether XRP price returns were caused solely by

19   the efforts of Ripple Labs. Correct?

20   MR. MOYE: Objection. Asked and

21   answered.

22   A.   I would -- I would say, as I testified

23   before, that that question is not an

24   economically well-formed question.

25   Q.   And so your methodology doesn't answer

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1   █████

2   it.   Correct?

3   MR. MOYE: Same objection.

4   A.   My methodology establishes that

5   Ripple Labs does things to move XRP prices.

6   Q.   If you would, Dr. ████ I'd like an

7   answer to my question.   Does your methodology

8   allow you to answer the question whether the

9   actions of Ripple Labs are the sole cause of XRP

10   price returns?

11   MR. MOYE: Objection.   Calls for legal

12   conclusion.

13   A.   I'm struggling to -- to understand

14   that as an economist.   As an economist, the

15   question doesn't make a great deal of sense.

16   That's all I can say.

17   So -- that's all I can say.

18   Again, it may be a very well-defined

19   legal term, but I don't think an economist could

20   render an opinion one way or another whether

21   something was due solely to the actions of one

22   person versus another.

23   Every -- as I said, every act of

24   exchange involves at least two parties.   It's

25   just not a -- not a term that economists tend to

1

2   use.

3   Q.   So you're not offering an opinion in

4   this case that Ripple's actions were the sole

5   factor impacting the price of XRP; is that

6   correct?

7   A.   Correct. I -- I -- nowhere do I offer

8   such an opinion. I offer the opinions as laid

9   out in my report.

10   Q.   And similarly, your methodology

11   doesn't allow you to answer the question whether

12   XRP price returns were caused primarily by the

13   actions of Ripple Labs. Correct?

14   MR. MOYE: Objection. Calls for legal

15   conclusion.

16   A.   Again, as an economist, I -- I -- I'm

17   not comfortable using the word "primarily."

18   What I have -- what I have shown, what

19   I've attempted to show and what I think the data

20   clearly show, is that XRP -- I'm sorry,

21   Ripple Labs does things to move XRP prices.

22   XRP prices react to things that

23   Ripple Labs does. XRP prices react to things

24   that happen to Ripple Labs.

25   That's -- that's what I was asked to

1

2   investigate, that's what I did investigate, and

3   that's what I found.

4   Q.   And on how many days, in the

5   approximately 2400 days covered by your study,

6   did you find evidence that the price of XRP was

7   statistically correlated with an action of

8   Ripple Labs?

9   A.   Well, the only number that I can

10   recall offhand is one that we discussed. I

11   provide an example of one case in my report,

12   Model Number 1, the constant mean model, and

13   under that model, out of the 105 days being

14   tested in Section 6(f), 24 are associated with

15   statistically significant positive XRP price

16   increases.

17   Q.   All right. Your methodology did not

18   seek to answer the question whether XRP price

19   returns were caused primarily by the actions of

20   Ripple Labs. Correct?

21   MR. MOYE: Asked and answered.

22   A.   I think we asked that question, but --

23   Q.   We asked it about solely. Now I'm

24   asking it primarily.

25   A.   I thought we also had discussed that

1

2   way, but fine.

3   Again primarily, the word "primarily"

4   just is not a word that, as an economist, I -- I

5   would apply to an analysis like this, or any

6   other analysis.

7   If -- if Alice sells an apple to Bob,

8   you could say, Alice sold the apple or you could

9   say Bob bought the apple. I -- parsing out the

10   primary-- who primarily did what is just not

11   something that is usually in the domain of an

12   economist.

13   Q.   And you're not offering an opinion in

14   this case that the XRP price returns were caused

15   primarily by the actions of Ripple Labs.

16   Correct?

17   MR. MOYE: Asked and answered.

18   A.   As I testified, I -- I was asked to

19   investigate a question, and I found significant

20   evidence, statistical evidence, that XRP prices

21   react to actions by Ripple Labs.

22   Q.   Now, you say "primarily" is not a word

23   that economists --

24   A.   I -- I do -- I'm just wondering how

25   much -- are we coming up on a break? I'm just

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1   ▉

2   asking.

3   Q.   Sure, we can take a break.

4   A.   I don't want -- I don't want to derail

5   things. If it's convenient at some point.

6   Q.   As I say, we can do this for 16 hours

7   so --

8   MR. MOYE: No, we can't.

9   MR. FIGEL: Any time to break is as

10   good as any other time. Let's go off the

11   record.

12   THE VIDEOGRAPHER: We're going off the

13   record at 3:36 p.m.

14   (Recess from 3:36 to 3:50.)

15   THE VIDEOGRAPHER: We're back on the

16   record at 3:50 p.m.

17   Q.   Dr. ▉   do you recall your testimony

18   about how the word "primarily" doesn't --

19   isn't -- isn't a term an economist would use?

20   A.   Beyond how a -- a layperson might use

21   it, but I meant as a scientific term in a

22   context like this, I don't think it's very well

23   defined.

24   Q.   So take a look at page 22 of your

25   report.

1   ███

2   A.   Yes.

3   Q.   In the fourth bullet from the top you

4   say, Ripple Commercialization Initiative.

5   Initiative launched by Ripple Labs primarily

6   described as being related to the

7   commercialization or promotion of Ripple's

8   products or technology.

9   A.   Yes.

10   Q.   What did you mean by "primarily"

11   there?

12   A.   I meant that a reading of the

13   announcement and description of the initiative

14   made it sound largely related to

15   commercialization or promotion of its products

16   or the general ecosystem.

17   Q.   So there you're using "primarily" and

18   "largely" synonymously?

19   A.   There I'm using the word "primarily"

20   as -- as used in common speech, I would say.

21   Q.   And going back to your opinion, you're

22   not offering the opinion that the price

23   impact -- any price impact on XRP was primarily

24   or largely caused by actions of Ripple Labs.

25   Correct?

1

2   A.   I'm not offering that opinion, that is

3   correct.   The -- to -- to insert those words

4   into an analysis like that I just think is

5   economically not well defined.

6   Q.   And -- and --

7   A.   Let me -- if I may finish.

8   I mean, the value of a citrus grove is

9   going to depend on the weather.   It's going to

10   depend on the general conditions of supply and

11   demand for citrus.

12   So, I -- you know, inserting the word

13   "solely" and "primarily," I don't know what

14   standard needs to be met, or how it would be

15   determined by an economist, to know whether

16   those words, which have a legal meaning, could

17   be applied to -- to a result like this.   So

18   I'm -- I'm not going to do it.

19   Q.   And the substance of your opinion is

20   that you found evidence that XRP prices react to

21   news about Ripple's actions.   Correct?

22   A.   I think I may have said "select

23   actions."   But in substance, yes.

24   Q.   And you found that on about 1 percent

25   of the days during the period that you examined.

1

2   Correct?

3   24 days out of about 2400.

4   A.   I mean, that's -- that's not a

5   calculation that has any meaning.

6   One could divide 24 by 2400, but that

7   doesn't mean anything in this context. Out of

8   105 events -- and, again, this isn't the only

9   basis for my opinion.

10   But focusing on that, out of 105

11   events, 24, plus or minus, are associated with

12   significant positive returns, and that is an

13   outcome that is so unlikely, but for some kind

14   of a correlation or association or dependence

15   between Ripple Labs and XRP prices. That is the

16   statistical basis of my opinion.

17   Q.   But what you found when you found that

18   correlation, you only found it on that model 24

19   times out of approximately 2400 days. Correct?

20   A.   I -- I reject the -- the formulation

21   of your question, 24 out of 2400. It's 24 out

22   of 105.

23   I'm testing 105 days. And I find 24

24   of them, again according to one model, have

25   statistically significant returns. And that

1   █████

2   outcome is incredibly unlikely.

3   Q.   And you found no correlation between

4   the actions of Ripple Labs on the 2400 minus 24

5   days that you -- that were encompassed in your

6   study, correct?

7   A.   I don't accept your characterization

8   at all. I think you're misstating, or -- the

9   basis of my analysis. It's not the right way to

10   think about it. I had a set of events. This is

11   how events studies work.

12   I had a set of events. I look to see

13   if there are price reactions in that set of

14   events. And I found that there were far more

15   than could be accounted for under the hypothesis

16   that Ripple Labs and XRP are independent of each

17   other.

18   Q.   I understand that, and you've

19   testified to that.

20   My point is, the only time you found a

21   statistical correlation between a Ripple news

22   event and a statistically significant XRP price

23   impact was on 24 days.

24   Correct?

25   MR. MOYE: Objection. Argumentative.

1

2   A.   According to Model 1, the intersection

3   between -- and according to Model 1, studying

4   the superset of various news categories, the

5   intersection between news days and significant

6   market days numbered 24.

7   Q.   All right. To do a proper event

8   study, you are required to state a hypothesis,

9   correct?

10   A.   I would say that statistical tests

11 revolve around the acceptance or rejection of

12 certain null hypotheses.

13   Q.   And what was the hypothesis that you

14 sought to accept or reject, in connection with

15 the opinion you're offering in this case?

16   A.   The null hypothesis is that

17 Ripple Labs and XRP price increases are

18 independent of each other.

19   Q.   And your conclusion is they're not

20 independent, correct?

21   A.   That is correct.

22   Q.   You weren't asked to determine whether

23 the actions of Ripple Labs were the sole or

24 primary reason that we see significant price

25 increases, correct?

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1

2   A.   Again, it's not a well-formed economic

3   question, but that was not the question that was

4   posed to me.

5   Q.   And you didn't seek to answer the

6   question whether the actions by any person or

7   entity other than Ripple had an impact on XRP

8   prices. Correct?

9   A.   I think that's fair. I certainly did

10 look at how XRP returns correlate with broad

11 crypto -- other broad digital token returns.

12 Now, that's not -- I acknowledge that's not

13 exactly what you asked.

14   But I did look at that question.

15   I was not investigating whether the

16 actions of, say, XYZ Enterprises, impacts XRP

17 prices.

18   Q.   So the answer to my question is no.

19 You didn't conduct any analysis to determine

20 whether actions by any person or entity outside

21 of Ripple had an impact on XRP prices. Correct?

22   A.   I -- I'm going to agree with that.

23   I would say that that's fair. I was

24 looking for a relationship between Ripple Labs

25 and XRP prices. I was not looking for a

1   █████

2 relationship between something else and XRP

3 prices. Again, above and beyond a general

4 exploration of correlation in the digital token

5 market.

6   Q.   All right. And couple times you have

7 included in your answer that XRP prices react to

8 certain news, and public statements about

9 Ripple's actions. Correct?

10   A.   Yes, that's correct.

11   Q.   And your methodology demonstrated that

12 there's not a statistically significant price

13 return on XRP with respect to all news about

14 Ripple. Correct?

15   A.   Correct.

16   Q.   And similarly, you did not find a

17 statistically significant price return on XRP,

18 with respect to all public statements about

19 Ripple. Correct?

20   A.   That's correct. I wouldn't expect

21 such a finding.

22   Q.   And your methodology didn't determine

23 whether a particular Ripple news event caused

24 any particular price movement. Correct?

25   A.   My methodology, based on the

1 ███

2   statistical results and analysis that I

3   conducted, I believe XRP prices reacted to news

4   of certain actions from Ripple Labs.

5   Q.   So are you -- is your opinion that

6   your study proves causation between Ripple

7   events and a statistically significant XRP price

8   movement -- price return?

9   A.   Causation is not a question which is

10 generally subject to proof as a matter of

11 economics. Correlation or independence is a

12 question which may be subject to proof.

13   So the statistical test, the -- the

14 statistical test, the null hypothesis, is

15 expressed in terms of correlation.

16   The question of what kind of inference

17 you can draw from a statistical result depends

18 on your economic understanding of the -- of the

19 facts of the matter and maybe some other

20 robustness checks that you may run to rule out

21 alternative explanations.

22   The sum total of all of that work

23 supports a -- an inference of likely or -- of

24 likely causation. But I wouldn't say that one

25 could prove causation.

1

2   Q.   So it's -- it's an inference of

3 causation, but you don't claim that you have

4 proof that any Ripple action or event caused a

5 statistically significant price return on XRP.

6 Correct?

7   A.   I would say that I have the type of

8 economic evidence which is often used when

9 assigning or assessing loss causation, on asset

10 prices. Whether a philosopher would say I've

11 proven something, I don't know.

12   I fully accept the truism that

13 correlation doesn't prove causation, but I think

14 correlation in conjunction with other analysis

15 can support an inference of likely or reasonable

16 causation.

17   Q.   What do you mean by the -- I want to

18 make sure I got your -- when you say, I fully

19 accept the truism that correlation doesn't prove

20 causation, what is the truism you're referring

21 to?

22   A.   Well, it's generally understood that,

23 just because two things -- let's call them A

24 and B.

25   Pardon me. My apologies.

1

2   Just because two things, A and B, are

3 correlated, that alone doesn't tell you whether

4 A caused B or B caused A, or whether X caused

5 both A and B.

6   Independence, finding that A and B are

7 independent of each other is generally evidence

8 that A didn't cause B. But simply finding

9 correlation by itself wouldn't be enough to make

10 a statement of, because A and B are correlated;

11 therefore, I know that A caused B.

12   Q.   And to make the point in a slightly

13 different way, on the days in which you did not

14 find a correlation between one of your 105

15 Ripple events and a statistically significant

16 price return on XRP, you're not offering an

17 opinion about the presence or absence of

18 causation with respect to that relationship.

19 Correct?

20   A.   Sorry. I'm trying to understand that

21 question.

22   Can you repeat it, please.

23   Q.   Let me see if I can ask it

24 differently.

25   Just as you said that your methodology

1

2   doesn't prove causation between a Ripple news

3   event and a statistically significant price

4   return for XRP on the 24 days in the model that

5   we've been talking about, you similarly don't

6   attempt to explain why there was not a

7   correlation between a Ripple news event and the

8   absence of a statistically significant XRP price

9   return. Correct?

10   A.   If by that you mean on the 75-, 79-odd

11   days where there is news but no significant

12   price reaction, did I do an exploration to

13   understand why there was no significant price

14   reaction on those days? Is that your question?

15   Q.   Well, why don't you answer that one.

16   A.   The answer to that question is, per

17   standard practice and event studies, no, I did

18   not do an investigation to see why there was not

19   a significant price reaction on those 79 days.

20   Obviously, it doesn't make any

21   difference to my analysis or opinion why there

22   was not a price reaction on those days.

23   Q.   And that's because your methodology

24   seeks to prove a correlation, not causation.

25   Correct?

1

2   A.   I would be a little bit careful about

3   that. My -- the event study methodology is a

4   statistical analysis of correlation, which could

5   be accepted or rejected per scientific

6   standards, generally, as a -- as part of an

7   inference of likely causation.

8   Again, we want to -- if you want to

9   use the word "proof," I don't know what proof

10 would mean there.

11   But the event study usually -- a

12 typical event study would proceed something

13 along the lines of, I observe a statistically

14 significant price reaction; I -- I check certain

15 boxes; and I, therefore, am willing to make the

16 statement that the price reacted to the event.

17   Q.   Well, let me give you a hypothetical

18 which is counterfactual, right?

19   On a day in which you have a Ripple

20 news event and a -- that -- that coincides with

21 a date on which there is a statistically

22 significant XRP price return, right?

23   A.   Uh-huh.

24   Q.   That price return could have been

25 caused by any number of factors. Correct?

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1

2   A.   No.

3   Q.   Well, you don't know if the reason the

4   price went up was because John Doe in Albania

5   decided to buy a billion units of XRP, correct?

6   A.   Well, wait a minute. The -- the price

7   went up presumably because there was change in

8   relative supply and relative demand. Whether

9   that was John Doe in Albania or Sally Smith in

10 Arkansas, I don't know, and I don't see what

11 difference it would make.

12   There was a change in relative supply

13 and demand, which is another way of saying, The

14 price moved, and the question is, Why did the

15 price move. Why was there a change in supply

16 and demand.

17   And the reasonable explanation is

18 there was a change in supply and demand because

19 of the news of this event.

20   Q.   Well, your methodology didn't test to

21 see whether supply changed in response to a

22 Ripple news event, did it?

23   A.   No event study methodology asks the

24 question of whether the increase in price was

25 because supply moved or because demand moved.

1 ███

2 I've never seen an event methodology -- event

3 study methodology that concerns itself with

4 that. They moved relative to each other, and,

5 therefore, the price changed.

6   Q.   Well, you don't know, do you?

7 You're --

8   A.   I do know that.

9   Q.   Well, tell me what data you studied to

10 determine whether it was an increase in demand

11 that caused a price impact or a reduction in

12 supply that caused a price impact.

13   A.   Again, I just said, it doesn't make

14 any difference to the event study methodology

15 which of demand or supply moved. It doesn't

16 make any difference. Nobody ever asks that

17 question.

18   The price moved. It is, therefore,

19 axiomatic that there was a change in relative

20 supply and demand. The question is, Why was

21 there a change in relative supply and demand,

22 that's the question.

23   And a reasonable answer, the answer

24 that I think the evidence supports is, there was

25 a change in relative supply and demand because

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1 ███

2 of news of the actions of Ripple Labs.

3   Q.   Did you -- on any of the 24 days in

4 the model we're talking about, did you look at

5 the volume of XRP trading on that day?

6   A.   Since it's not relevant, no, I did

7 not.

8   Q.   And as a result, you're not in a

9 position to offer an opinion as to whether the

10 price moved because there were more buyers than

11 sellers, or fewer sellers than buyers, correct?

12   A.   I'm sorry, I shouldn't laugh. I've

13 never seen any event study concern itself with

14 the questions you're posing.

15   I will, therefore, say that you're

16 correct that I did not attempt to determine

17 whether supply moved more than demand or whether

18 demand moved more than supply.

19   I would further point out that looking

20 at trading volume can't help you answer any

21 question like that, but it's -- it's such a

22 strange exercise and question, it would never

23 occur to me, or I think anybody else, to even

24 attempt anything along the lines of what you're

25 suggesting.

1   ███

2   So no, I didn't do it.

3   Q.   All right. If you could turn to

4   paragraph 75 on page 32.

5   A.   Yes.

6   Q.   And in the bottom of paragraph 75, you

7   write, From an economic perspective, one

8   explanation, of course, is that news of the

9   event causes the XRP price response.

10   You wrote that, correct?

11   A.   Yes.

12   Q.   And why did you add "one explanation"?

13   A.   Well, I wanted to acknowledge --

14   this -- this goes back to the truism that we

15   were discussing a few minutes ago. Simply

16   establishing the two things are correlated, by

17   itself, doesn't tell you which one is causing

18   the other, or whether there's even a third event

19   or third force causing both.

20   So I wanted to say here, one

21   possibility is that the news is causing the

22   price, and then in Footnote 71, I try and lay

23   out what the other logical possibilities are,

24   but why, you know, I -- I don't think those are

25   at all plausible or -- or reasonable.

1

2   Hence, I'm -- I'm comfortable in

3   offering the opinion that in my opinion, the

4   evidence indicates that the news is causing the

5   price.

6   Q.   And you say that -- you outline, in

7   Footnote 71, logical possibilities. What do you

8   mean by logical possibilities?

9   A.   Well, so, let's accept that A and B

10 are correlated.

11   A could cause B, or B could cause A,

12 or X could cause both.

13   So in this case, the A is the news

14 from Ripple Labs, and the B is the XRP price

15 increase. Let's just accept for a moment that

16 those two things are correlated. Okay. What's

17 causing that?

18   What I lay out here is, you know the

19 first one, another explanation might be what I

20 say is the reverse, that the price caused the

21 news, rather than the news caused the price.

22   Now, what that would mean, and why I

23 think we could dismiss that immediately as

24 unreasonable, is that Ripple Labs, with its

25 crystal ball, knowing that the price of XRP was

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1   ███

2   about to go up, strategically decided to release

3   certain announcements at exactly the right time.

4   I -- I simply reject that as at all

5   possible. So in that -- going back to the A and

6   B terminology, the idea that B could cause A,

7   the idea that the price could cause the news,

8   I -- I just think is -- is unreasonable and we

9   can dismiss it.

10   Then the question of, Well, could

11   there be some X factor that's causing both.

12   Again, we've discussed this at length this

13   morning. This is the idea of some confounding

14   event that is driving both things; I think we

15   can dismiss that as also unreasonable.

16   And that leaves sort of the last --

17   the last person standing, that the most likely

18   explanation of the statistical evidence is that

19   the news caused the price.

20   Q.   Tell us what you mean by an X factor?

21   A.   I mean what some might term

22   confounding event.

23   So something else both causes, you

24   know, in this case, Ripple Labs to get venture

25   funding and also causes XRP prices to go up.

1

2   Q.   But you acknowledge that an X factor

3 is a possibility, correct?

4   A.   I acknowledge, of course, that it is a

5 logical possibility. Therefore, I take a number

6 of steps to rule it out as not probable.

7   Q.   And it's a logical possibility on any

8 of the 24 days in which you found the

9 correlation between the Ripple news event and a

10 statistically significant price impact on XRP,

11 correct? It's a possibility on every one of

12 those events.

13   A.   Not -- I cannot say as a matter of

14 logic, that it is impossible. I can say that

15 following all the steps that I took, I don't

16 think it's at all likely or reasonable with an

17 explanation.

18   Q.   And you gave some examples of possible

19 X factors in Footnote 71, correct?

20   A.   I don't -- I don't think I actually do

21 provide examples of what these X factors might

22 be. I just simply label them "X factor."

23   Q.   Well, what did you mean when you

24 wrote, These events -- following the sentence

25 about the X factor, what did you mean when you

1

2   wrote, These events, of course, are disparate in

3   their nature, including venture funding rounds

4   involving multiple investors, joint ventures in

5   Asia and licensing decisions made by the State

6   of New York.

7   A.   I'm referring to the events being

8   studied here. This is the milestone category.

9   Those are the milestones.

10   So we -- we'd have -- we'd have to be

11   positing some X factor that is causing venture

12   founding rounds, New York regulatory decisions,

13   various other things, all -- so that -- causing

14   it in such a way that the day that we happen to

15   announce that we're getting venture funding

16   Round A also happens to be the day that XRP

17   price go up.

18   Again, I just -- I just don't think

19   that's -- that's a plausible or reasonable

20   explanation. I acknowledge here in the footnote

21   I cannot rule it out as logically impossible.

22   I -- I do end up dismissing it as a reasonable

23   explanation.

24   Q.   Can you posit, or imagine, any factor

25   that could have a different price impact on XRP

1

2   as opposed to bitcoin or Ether?

3   A.   Besides actions by Ripple Labs?

4   Q.   Yes.

5   A.   Well, sure. I think -- I think --

6   what is it, the Arrington fund, when -- when he

7   announces setting up an XRP-denominated fund,

8   that might be something that would spur interest

9   in XRP.

10   Of course, it also presumably would

11   spur creation of XRP accounts, but that might be

12   an example of something that might move the XRP

13   price. I don't know.

14   Q.   Anything else?

15   A.   I -- I mean, not without just

16   descending into wild speculation of things that

17   might be.

18   Q.   Well, John Doe's been thinking about

19   buying XRP for six months and, on that

20   particular day, decides he wants to buy a lot of

21   XRP. That would be an X factor, wouldn't it?

22   A.   An X factor that cause-- why would

23   John Doe buying XRP cause the price to go up?

24   Q.   Didn't you just testify that increased

25   demand and fixed supply --

1   ███

2   A.   That's -- that's simply a component of

3   demand. I said that demand relative to supply

4   changes, and so price moves. John Doe buying

5   XRP is just an example of demand --

6   Q.   Doesn't it --

7   A.   -- not an example of demand changing

8   relative to supply.

9   Q.   Doesn't it depend on what size

10   purchase he makes?

11   A.   Possibly.

12   But whether it causes the price to go

13   up or down -- sometimes people want a volume

14   discount. If he buys a lot of XRP, maybe he'll

15   want a volume discount and execute that trade at

16   a slightly lower price than the prevailing

17   market price. I -- who can say?

18   Q.   So let's go to page 1 of Appendix D of

19   your report.

20   A.   Uh-huh.

21   Q.   Tell us why you had to add an

22   Appendix D to explain your methodology.

23   A.   Well, of course, I -- I detail aspects

24   of my methodology in the main body of my report.

25   Certain details, which I don't think

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1

2   are necessary to understand in order to

3   understand the basic approach that I took, I --

4   I moved to an appendix, really for readability

5   issues.

6   But, thinking about, you know, who

7   might be reading this report and how familiar

8   they may or may not be with event studies, I

9   decided to provide some additional detail.

10   Q.   All right.   Could you read the first

11   sentence of paragraph 2 of Appendix D, please,

12   for the record.

13   A.   An event study is conducted by first

14   specifying a model of expected price movements

15   and then testing the extent to which actual

16   price movements differ from those expectations.

17   Q.   And you go on to say, The question an

18   event study answers is whether the differences

19   between actual and expected price movements are

20   sufficiently large that, from a statistical

21   standpoint, such differences are unlikely to be

22   explained by randomness.

23   Is that correct?

24   A.   I did write that, yes.

25   Q.   And then you note, In this context --

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1   ████

2   and by "this context," we're talking about the

3   market for XRP, correct?

4   A.   No. I'm speaking specifically in

5   the -- in the general context of an event study,

6   to explain what randomness means.

7   I mean, it's true of XRP as well, but

8   I wasn't specifically referring to XRP when I

9   said "in this context."

10   Q.   But the sentence you wrote, In this

11   context, randomness refers to the tendency for

12   actual outcomes, in this case the actual price

13   movement, to deviate from the expected outcomes

14   in ways which appear random in nature, applies

15   equally to XRP, correct?

16   A.   Yes.

17   Q.   And on page 28, paragraph 60, you note

18   that you considered 20 different models

19   estimated using 188-day estimation windows; is

20   that correct?

21   A.   180 days, not 188 days.

22   Q.   It's getting -- I thought I said 180.

23   A.   I heard 188.

24   Q.   You might well have, but I agree it

25   says 180.

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1

2   And then you test the tendency for the

3   actual XRP price returns to deviate from the

4   expected XRP price returns that are predicted by

5   your 20 models. Correct?

6   A.   Correct.

7   Q.   And in the models that you have

8   created, the expected return is derived

9   primarily from the price returns of other

10 cryptocurrencies. Is that correct?

11   A.   Several of the models -- yes, that --

12 I mean, in many of the models that would be

13 true.

14   Q.   And you have a demonstrative to assist

15 the reader on page 19. That's your Figure 7.

16 Is that correct?

17   A.   I -- I hope I didn't have -- shuffle

18 things out of order.

19   Okay. Page 19, yes. Yes, that's

20 correct.

21   Q.   You with me?

22   The only independent variables in

23 these various models are the growth in XRP

24 accounts and the returns of other

25 cryptocurrencies. Is that correct?

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1

2   A.   Except in half the models where we're

3   controlling for serial correlation, in which

4   case you also control for lags of those things,

5   as well as lagged XRP returns.

6   Q.   So your lagged independent variables

7   are all factors independent of XRP; is that

8   correct?

9   The lagged independent -- the column

10 on the far right?

11   A.   They are the independent variables.

12 So whatever independent variables you have,

13 whether that's bitcoin, Ether, whatever it may

14 be, you have those returns measured

15 contemporaneously with XRP returns, and then you

16 also include the one-day lag of those returns.

17   Q.   But again, those lagged independent

18 variables are exclusively related to data

19 derived with respect to bitcoin, Ether, and

20 lumens, correct?

21   A.   And XRP account growth.

22   Q.   So your estimation models, is that a

23 fair description of what these are?

24   A.   Yes, I would say so.

25   Q.   Your estimation model suggests that a

1

2   reasonable investor's expectations of XRP price

3   returns would be based on the performance of the

4   three other cryptocurrencies that you use in

5   your models. Correct?

6   A.   Well, I have models with one, two,

7   three, five. But, I mean, framing it as the

8   expectations of a reasonable investor, sort of

9   adding words that one doesn't usually add, but

10   we can decompose or project XRP returns on these

11   factors. I mean, it's standard practice, I

12   would say.

13   Q.   But the baseline expectation of how --

14   how XRP prices will move, according to your

15   model, is predicted by the movement of other

16   cryptocurrencies or the three other

17   cryptocurrencies that you have in Figure 7,

18   correct?

19   A.   In different combinations. And,

20   again, the equal-weighted index adds two other

21   cryptocurrencies to the mix.

22   Q.   And if we could go to page 6,

23   paragraph 15.

24   I'm sorry, of your rebuttal report. I

25   got that wrong. Sorry.

1

2   A.   Sorry.   Page 6.

3   Page 6, paragraph 15.   Yes?

4   Q.   I'm just going to read the sentence so

5 we can move along.   You write, Even accepting

6 all of his -- and that's Professor Ferrell's --

7 results as correct, Dr. Ferrell's analysis would

8 only serve to establish that, romanette i, there

9 is a relationship between XRP returns and those

10 of other digital tokens (which is not disputed

11 and which I established in the ▮▮▮ report).

12   Do you see that?

13   A.   I do see that, yes.

14   Q.   What do you mean when you say that

15 there is a relationship between XRP returns and

16 those other digital tokens?

17   A.   I mean that there is a correlation

18 between XRP returns and the returns of other

19 digital tokens.   Or that in the context of a

20 factor model of the type that Dr. Ferrell is

21 running, that you would find that -- that other

22 digital token returns enter that factor model

23 with some degree of statistical significance.

24   Q.   And you say that's not disputed and

25 you establish that in the ▮▮▮ report.

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1   ▮

2   What do you mean by that?

3   A.   I mean that I -- I don't -- I

4   certainly didn't dispute it, and I -- I

5   certainly don't dispute it. I can't -- I can't

6   speak to whether other people dispute it.

7   Perhaps I should have inserted the

8   word "I." I don't dispute.

9   But my opening report has -- what is

10 it? -- Section 7, which shows at some length how

11 XRP returns correlate with, for instance,

12 bitcoin and how they -- how it relates to

13 bitcoin and Ether at different points in time.

14   So that's what I meant when I said,

15 I -- I -- again, I should have inserted the word

16 "I" -- don't dispute that there is an

17 association between XRP returns and other

18 digital token returns, and I demonstrated that

19 in my opening report.

20   Q.   And in your opening report, that was

21 the data that you relied on, to predict the

22 expected XRP return. In order to provide the --

23 the data from which you would identify

24 statistically significant XRP price returns.

25 Correct?

1

2   A.   I'm tempted to say correct. That

3   sounds right.

4   Q.   Well --

5   A.   There are too many words there, but

6   that sounds right. That sounded right. That is

7   the data that I used in my analysis.

8   Q.   Let's see if we can make the record

9   clear here. As I understand it, your

10 methodology -- withdrawn.

11   As I understand it, the way in which

12 you identify the expected XRP price return was

13 by the 20 models that you have in Figure 7,

14 most, if not -- most of which relied on the

15 price returns of bitcoin, Ether, and lumens,

16 correct?

17   A.   In some -- let's insert the word "in

18 some combination," right? Not all of them have

19 lumens. But generally speaking, yes.

20   Q.   And that -- those were the -- those

21 were the factors -- withdrawn. I don't want to

22 use "factors."

23   That was the data from which you

24 predicted the expected XRP return. Correct?

25   A.   With XRP account growth in some models

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1

2 and lags in other models, but broadly speaking,

3 yes.

4   Q.   And I -- I don't have it memorized.

5 But in some of the models -- I think it's 2, 4,

6 6, and 8 -- the only data that you looked to for

7 predicting XRP price returns was your constant

8 variable and either bitcoin alone or bitcoin

9 plus Ether or bitcoin plus Ether plus lumens,

10 correct?

11   A.   That is correct.

12   Q.   And for each of those models, you

13 determined that they were -- you determined that

14 each of those models were reliable estimators of

15 expected XRP price returns. Correct?

16   A.   I considered all of those models to be

17 reasonable factor models, and they are in the

18 class of factor models.

19   Reasonable factor models of XRP

20 returns.

21   Q.   And, in fact, you relied on those

22 results in reaching your opinions. Correct?

23   A.   Among other results, yes.

24   Q.   And so one way in which someone who

25 wanted to expect the returns, the future returns

1

2   of XRP, and estimate what those returns would

3   be, would be able to look to the returns of

4   bitcoin, Ether, and lumens in order to reach

5   that -- that -- make that judgment, correct?

6   A.   Well, I would just be a little

7   carefully. It's not a useful forecasting model

8   if that's what -- if that's what you're trying

9   to suggest. Because remember that the returns

10   are measured at the same time as XRP returns.

11   Q.   Fair enough.

12   Would you --

13   A.   So I'm not saying you would look at

14   what happened on bitcoin today to form a

15   forecast of what will happen in XRP tomorrow.

16   Q.   Well, you do use that as one of your

17   models, but let's -- let's -- I take it as let's

18   take the forecasting point.

19   If you wanted to understand what the

20   expected return of XRP was during the period

21   that you examined, the models you used

22   established that using the various models with

23   XRP -- I'm sorry, with bitcoin, Ether, and

24   lumens, were reliable estimators of the returns

25   of XRP. Correct?

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1

2   A.   I -- I -- they -- I thought they were

3   all reasonable factor model specifications. And

4   so I wanted to consider -- I wanted to make sure

5   that my results were robust across these

6   different specifications.

7   You know, you've inserted the word

8   "reliable." Did I come to a point of view that

9   I think bitcoin is the perfect factor? It's

10 certainly a factor that you'll find in the

11 literature, and it seems like a reasonable

12 factor to use.

13   Q.   Well, if you made the judgment --

14 withdrawn.

15   Let me -- let's get the models out, I

16 think it will be easier.

17   So let's go back to page 19, Figure 7.

18   A.   I have it.

19   Q.   All right.

20   Model 2.

21   I'm sorry. Model 3 --

22   A.   Uh-huh.

23   Q.   -- the two independent variables you

24 used to predict estimated XRP price returns were

25 the constant and bitcoin. Correct?

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1

2   A.   Model 3 is constant, bitcoin, and XRP

3 account growth.

4   Q.   All right. This is why I need better

5 glasses.

6   A.   Oh, no, no. You're shaking your head,

7 you're right. The odd number ones do not have

8 account growth, I apologize. I was remembering

9 back before with the 2, 4, 6, 8.

10   You're correct, Model 3 --

11   Q.   So --

12   A.   -- Model 3 is just bitcoin and

13 constant. You're right.

14   Q.   And Model 5 is constant, bitcoin, and

15 Ether. Correct?

16   A.   Correct.

17   Q.   And Model 7 is constant, bitcoin,

18 Ether, and lumens. Correct?

19   A.   Correct.

20   Q.   And each of those models, you

21 determined, were reliable for predicting the

22 expected return of XRP. Correct?

23   A.   I thought each of those models was a

24 reasonable factor model for XRP return.

25   Q.   And if you thought it wasn't

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1

2   reasonable and reliable, you wouldn't have --

3   you wouldn't have relied on it, correct?

4   A.   If -- certainly if I thought it was

5   unreasonable and unreliable, I wouldn't have

6   used it.

7   Q.   Now, in Model 9, you add in what you

8   call an e-Index. Can you tell us what an

9   E Index is?

10   A.   E is for equal, equal-weighted index.

11   So I -- I think the notes at the table, or -- or

12   footnote in -- in that section generally,

13   explains that the equal-weighted index is an

14   equal weighted -- is an equal-weighted average

15   return across bitcoin, Ether, lumens, Binance or

16   Binance coin, and then -- now I need to look at

17   it to remember the name of the fifth one.

18   Q.   I'll help you. ADA?

19   A.   Right.

20   Q.   What is Binance coin?

21   A.   Those -- those other two tokens are

22   currently -- or at least in and around the time

23   that -- that I was preparing the report, those

24   were some of the largest market cap digital

25   tokens.

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1

2   At that time. I don't know if they

3   still are today.

4   Q.   Are you aware of any academic

5   literature in which the Binance returns were

6   used as a variable in an XRP regression model?

7   A.   I can't say that I can think of an

8   academic literature that specifically used that

9   factor.

10   Of course, Dr. Ferrell uses a variety

11   of digital tokens in -- in his analysis.

12   But no, I can't point -- I can't

13   remember an academic study that specifically

14   used that token as an explanatory variable.

15   Q.   What, if anything, did you do to

16   satisfy yourself that using Binance returns

17   would be an appropriate or reliable comparator

18   for XRP returns?

19   A.   Again, I -- I took some of -- I took

20   the returns of what were, at the time, the --

21   the largest by market cap digital tokens, and

22   what I wanted to do was satisfy myself that the

23   correlation results I was going to focus on

24   would not change or would not be sensitive to

25   adding these other major coins. That was --

1

2   that was the purpose of these different model

3   specifications.

4   Q.   Did you consider using any other

5   digital assets in this model?

6   A.   No.   Those -- between those -- those

7   tokens, plus lumens, we spanned a -- I don't

8   remember the number but a very large share of

9   the digital token market by volume. So no, I

10   didn't -- I didn't think it was necessary to --

11   to continue to add tokens to the other side.

12   The other -- the other thing that

13   happens, just as a practical point, is, some of

14   these digital tokens don't necessarily have a

15   very long pricing history.

16   So, if -- when you're going to study

17   these events back further in time, you don't

18   necessarily have, you know, a wide library of

19   tokens that you could possibly choose from.

20   As time goes on, more tokens are

21   created, and I agree, you could continue to

22   expand that index, but I -- I didn't see the --

23   the need or benefit of doing that.

24   Q.   And in the E Index, you weighted each

25   of these tokens equally, correct?

1

2   A.   Correct. The alternative -- the

3   common alternative would be value weighted as we

4   discussed this morning. Once you value weight

5   them, you basically just end up with bitcoin

6   again. So I -- I already had a model with

7   bitcoin. A value-weighted index model struck me

8   as being largely redundant.

9   Q.   Just so the record's clear, did you

10   say value weighted or volume weighted?

11   A.   Value, usually in the sense of market

12   cap, so it's a combination of volume and price.

13   Q.   And what do you mean by "market cap"?

14   A.   I mean the combination of volume and

15   price.

16   Q.   Well, by "market cap," do you mean all

17   of the outstanding units of that digital asset

18   multiplied times the market price?

19   A.   Sometimes it's all that are

20   outstanding. Sometimes it's all that's been

21   traded over some window. Different people may

22   compute it slightly differently, but

23   conceptually, yes.

24   Q.   And did you take -- did you

25   investigate what the -- we'll call it the market

1

2   cap, of ADA was?

3   A.   I know -- I know that again when we

4   pulled the data, the instruction was to pull the

5   largest by market cap at the time we were

6   assembling the data set. I don't recall offhand

7   what the market cap of ADA was.

8   But I think -- I imagine I have a

9   footnote, in and around this table, where I cite

10   the source of my market cap data which indicated

11   it was a -- one of the larger coins at that

12   time.

13   Q.   Now, you included in your model what

14   you called account growth?

15   A.   Correct.

16   Q.   Are you aware of any publications or

17   studies that support using the number of

18   accounts for digital asset as a predicter of

19   price impact?

20   A.   I -- I cite to a literature that

21   explores network effects on digital token

22   prices, and -- and accounts was one proxy that

23   they used for network effects.

24   Q.   That study also used four other

25   criteria, correct?

1

2   A.   It did.

3   Q.   Including the number of active

4   addresses, the number of transaction count and

5   the number of payment count?

6   A.   I don't have the study in front of me,

7   but that sounds familiar.

8   Q.   Does that sound generally correct? I

9   can show you the study if you like.

10   A.   It sounds generally correct.

11   Q.   And you elected not to use the other

12   three variables that were cited in that study.

13   Correct?

14   A.   I -- correct. I elected to focus on

15   account growth.

16   Q.   And why was that?

17   A.   It was a -- if -- I think if we look

18   at the study, you'll see that it's a significant

19   factor in their models. The data were readily

20   available and seemed cleanly measured, and it

21   seemed like a useful factor to include.

22   I found that many of the models put a

23   statistically significant weight on that factor

24   at different points in time.

25   Q.   The article you're referring to is

1

2   in -- published in the Review of Financial

3   Studies, "Risk and Returns of Cryptocurrency" by

4   Yukun Liu and Aleh Tsyvinski; is that correct?

5   A.   I mean, I -- I think so. I'm happy to

6   look at my report and look at the footnote.

7   Maybe you have it in front of --

8   Q.   Why don't -- why don't I just show you

9   what we'll mark as Exhibit 11.

10   (Article titled "Risks and Returns of

11   Cryptocurrency" was marked Exhibit 11 for

12   identification, as of this date.)

13   Q.   Why don't you take a look at page 2699

14   of Exhibit 11.

15   A.   Uh-huh.

16   Q.   You see they say, We construct network

17   factors of cryptocurrency and test whether these

18   factors can account for variations of

19   cryptocurrency prices?

20   A.   I see that, yes.

21   Q.   And then it says, we then use -- We

22   use four measures to -- to proxy for the network

23   effect, the number of wallet users, the number

24   of active addresses, the number -- or

25   transaction count and the number of payment

1

2   count.

3   A.   I see that.

4   Q.   It says, Then we measure

5   cryptocurrency network growth using the wallet

6   user growth, active address growth, transaction

7   count growth and payment count growth.

8   Do you see that?

9   A.   I see that.

10   Q.   What are network factors?

11   A.   Well, the phrase can mean different

12   things in different contexts. But here, I take

13   them to mean the idea -- the idea of -- of sort

14   of a network effect in value, meaning the value

15   of something depends in part on how many other

16   people are associated with it. That's generally

17   what a network effect is.

18   So as -- as it grows, as the network

19   of people involved grow, the value of the

20   network increases.

21   Q.   So the study -- what was discussed in

22   this article was how to measure the growth of a

23   network. Correct?

24   A.   I don't know if I would characterize

25   it that way. I would say what the study's

1   ███

2   testing and showing is whether some proxies,

3   some variables, which you might say they proxy

4   for network growth, how those variables are

5   associated or correlated with digital token

6   returns to see whether -- you know, to test this

7   hypothesis, whether network factors help drive

8   prices.

9   Q.   And this portion of the study, though,

10   is, as you say, using factors or proxies for

11   measuring network growth. Correct?

12   A.   Correct.

13   Q.   It doesn't say that those factors are

14   relevant to determining price impact on a

15   digital asset. Correct?

16   A.   No. I think that's exactly what

17   they're saying.

18   Q.   They're measuring network growth and

19   then measuring network growth as a predicter

20   for --

21   A.   For price impacts.

22   Q.   Right. So you've picked one factor

23   that they use to measure network growth and

24   skipped the step of figuring out whether there's

25   network growth and apply it directly to price

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1

2   impact on a digital asset. Correct?

3   A.   I don't see that I skipped a step.

4   They're testing a hypothesis of whether certain

5   proxies of network growth were associated with

6   price increases. They generally find that they

7   are.

8   So taking that result, and -- I

9   decided to have a version of -- one version of

10   all of my models, which adds a proxy for network

11   growth, again, just to make sure that my results

12   are robust to whether a proxy for network growth

13   is included or not.

14   Q.   Well, you picked one of four factors

15   that was used as a proxy for network growth,

16   correct?

17   A.   That's correct.

18   Q.   And the data for the other factors was

19   available to you. Correct?

20   A.   Correct.

21   Q.   You --

22   A.   I mean, I assume so because --

23   Q.   You could identify the -- let's not

24   talk over each other.

25   You could have identified the number

1   ███

2   of wallet users, correct?

3   A.   Presumably. I --

4   Q.   You could have identified number of

5   active addresses?

6   A.   Well, that's what I have.

7   Q.   And you could identify the number of

8   transaction count?

9   A.   I -- I presumably could have gotten

10   some transaction count data.

11   Q.   And you could have identified the

12   number of payment count. Correct?

13   A.   I mean, not having attempted to obtain

14   all of those things, possibly they're all

15   obtainable. I took the -- I took the account

16   growth, which appears to be, you know, the most

17   significant factor that they have.

18   Q.   All right. Are you aware of any

19   professional or academic work that has used the

20   prices of other digital assets as variables in a

21   regression model to identify XRP returns?

22   A.   The event studies I've seen generally

23   do not have other digital token price factors.

24   They correspond to my Model 1, and they

25   correspond to my Model 11.

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1

2   But the use of factor models,

3   generally, is established. And, of course, you

4   know, Dr. Ferrell does sort of the same thing.

5   I'm trying to remember if -- if I saw

6   an event study. The -- the reason I'm -- I'm

7   thinking about it is a lot of the event studies

8   include bitcoin as -- you know, they're looking

9   at the -- the response of bitcoin to certain

10   events. And so, obviously, you can't put

11   bitcoin returns on the other side of a bitcoin

12   model.

13   Q.   I don't want to interrupt you. I

14   have -- the question is very specific.

15   A.   Yeah.

16   Q.   The question is whether you're aware

17   of any publications, academic literature, that

18   use the price other digital assets as a variable

19   in a regression model to predict XRP returns.

20   I'm looking specifically for

21   publications that focus on XRP returns.

22   A.   Sitting here today, the event studies

23   related to XRP returns with which I am most

24   familiar only use the constant mean return model

25   that I used, my Model 1. And I believe

1 ███

2   Gerritsen also does a correction for serial

3   correlation, which is my Model 11.

4   Q.   But neither of those two studies

5   involve the use of other cryptocurrencies to

6   predict XRP prices. Correct?

7   Serial correlation is not a -- does

8   not depend on the returns of other

9   cryptocurrencies, correct?

10   A.   Correct. Correct.

11   Q.   So the answer to my question is, no,

12   you're not aware of any other academic or

13   professional studies that use the price of other

14   digital assets as variables in a regression

15   model to predict XRP price returns?

16   A.   Sitting here today, I can't think of

17   one, no.

18   Q.   Are you aware of any professional or

19   academic studies that have used the growth of

20   XRP accounts as a variable in a regression model

21   to predict XRP returns?

22   A.   Well, now I just have to remind myself

23   whether -- whether XRP was one of the price

24   series used in the -- in the paper that we're

25   studying.

1

2   It -- they may have been -- they may

3   have based it on bitcoin prices.

4   A lot of the literature does focus on

5   bitcoin prices.

6   Just trying to -- I'm just trying to

7   remember.

8   My recollection is that this study is

9   looking at bitcoin prices and suggesting network

10   factors for bitcoin.

11   I just want to make sure that I'm

12   not -- I'm not misremembering. It's been a long

13   time since I looked at this.

14   (Witness reviewing document.)

15   A.   Oh, no. That's -- no. Right. I'm

16   sorry. They're studying an index, constructed

17   index of cryptocurrency market returns,

18   value-weighted returns on all coins with

19   capitalizations of more than a million, da, da,

20   da, da, da.

21   I'm trying to see if they indicate

22   whether XRP was picked up as part of that. I

23   expect it would have been.

24   I'm just trying to -- I'm sorry. I'm

25   just trying to see where they list exactly which

1

2   digital tokens go into their index. They

3   describe it as being above a market cap of a

4   million, which I assume would have picked up

5   XRP. I'm just trying to see if I can -- if I

6   can just see a list of the tokens that they --

7   that they consider.

8   I don't think they -- I'm not

9   seeing -- and I apologize if I'm just missing

10   it. I'm not seeing an explicit list of which

11   tokens are in -- no. Wait. I'm sorry.

12   Table 1 -- okay. Table 1 compares the

13   properties, bitcoin, Ether, Ripple, and so on

14   and so forth. So I -- I have every reason to

15   think that Ripple is part of their index, of

16   digital token returns that they are comparing

17   against market factors.

18   Q.   Well, it's one of several. My

19   question was, are you aware of any professional

20   or academic publications that use the growth in

21   XRP accounts in a variable, in a regression

22   model, looking specifically at XRP returns?

23   A.   That very narrow question? No, I'm

24   not aware of one.

25   Q.   Are you familiar with the concept of

1

2   error rate?

3   A.   I -- I -- I think I am, yes.

4   Q.   Did you do any work to determine

5   whether there was an error rate in any of the

6   data or the application of data to the event

7   study that you conducted in this case?

8   A.   Well, of course, the -- the regression

9   results incorporate error -- not necessarily

10   error, but variance of the data and the variance

11   of the error term of a regression.

12   So that's -- that's naturally part of

13   it.

14   The generalized rank test that I

15   applied is a test of significance against a

16   measure of standard error. So that's

17   incorporated there.

18   And the exact sample hypergeometric

19   test, which is basically the Fisher test, is an

20   exact sample test.

21   So thinking through the various

22   sources of error, I believe they are all

23   properly accounted for in my analysis.

24   Q.   Well, you assume that the error rate

25   based on the statistical analysis you did was

1

2   5 percent. Correct?

3   A.   That's not an error rate.

4   So no. No. I think you're -- I think

5   you're misstating things. 5 percent is not an

6   assumed error rate.

7   Q.   Well, the 5 percent means the -- the

8   correlation or the value assigned could be

9   5 percent higher or 5 percent lower. It's a

10   level of statistical significance, correct?

11   A.   No. That's not what it means in this

12   context.

13   Q.   Well, why don't you tell us what the

14   5 percent significance that you have -- has

15   asterisks. You have 5 percent, 1 percent.

16   Let's just talk about 5 percent.

17   What does that 5 percent reflect?

18   A.   That means that the probability of

19   observing the outcome that we observe is --

20   would be 5 percent, assuming the null hypothesis

21   of the model.

22   So, for example, assuming Ripple Labs

23   and XRP markets are independent of each other,

24   the probability that you would draw 24

25   significant days out of a group of 105 is on the

1

2   order of 1 in a hundred thousand. So much less

3   than 5 percent.

4   That's what the 5 percent significance

5   test means.

6   And that is customarily, or at least a

7   very common standard in scientific research, to

8   say, if the probability of this outcome under

9   the model, under the null hypothesis of the

10   model, is less than 5 percent, then I can reject

11   the null hypothesis. That's what 5 percent

12   means in this -- in this context.

13   Q.   What is the error rate in concluding

14   or determining that XRP had a statistically

15   significant price return when making that

16   determination based on the expected returns

17   predicted by other digital assets?

18   A.   I'm going to try and understand your

19   question.

20   In the context of any one of

21   20 regression models, the context of any one

22   date that we're considering, we have a predicted

23   return and we have an actual return and we have

24   a difference.

25   We also have a measure of the

1

2   statistical -- the statistical difference --

3   distance of that difference. So, you can think

4   of it as how many standard deviations away from

5   expectations are you.

6   That statistical distance reflects

7   uncertainty and parameter estimates and a whole

8   host of things.

9   Okay. If that statistical distance is

10   such that the odds of observing -- the obs of --

11   the odds of observing a difference between

12   expected returns and actual returns is less than

13   5 percent, then we would -- then we would flag

14   that as a statistically significant abnormal

15   return.

16   Did that answer your question?

17   Q.   I don't know. Let me try another one.

18   What that -- if I understood you

19   correctly, what it suggests is that not every

20   time you find a coincidence of a statistically

21   significant XRP price return and a Ripple event

22   do you have confidence of a correlation?

23   In other words, that could -- that

24   could happen by random chance, some percentage

25   of the time. Correct?

1

2   A.   Well, I would not accept the way you

3   framed the question.

4   Of course, it is -- and I make this

5   clear in the report. There -- there is a one in

6   a hundred thousand chance, by random chance,

7   that we could draw 24 significant days out of a

8   set of 105.

9   It's not impossible, you know. By the

10   laws of physics, there is a one in about a

11   hundred thousand possibility of doing that by

12   random chance.

13   But the standard for statistical

14   significance and scientific research is, is

15   there a 1 in 20 chance that this outcome could

16   be due to random chance?

17   So that's why I say these results are

18   well within any reasonable standard of

19   significance that would be recognized in

20   academic research.

21   I would -- I would just refer you back

22   to the jar of marble example. As I say there,

23   it is possible to draw ten red marbles out of

24   the jar. It's not impossible, it's possible.

25   But you have to wait and do it millions and

1

2   millions and millions and millions of times

3   before you grabbed all ten red marbles. You'd

4   probably win the lottery a few times over. So

5   that's generally how statistics works.

6   Q.   All right. And other than your

7   confidence in the statistical significance, as

8   you just described it, did you do anything to

9   determine whether there were any errors that was

10   in the data or in the application of the data to

11   the -- the model that you used?

12   MR. MOYE: Asked and answered.

13   A.   Well, I mean, it -- of course, we have

14   procedures, among my team, to look for errors.

15   The implementation of the statistical models and

16   all of the analysis that you see was done by a

17   second independent person to make sure that

18   numbers tied out and there were no errors in

19   code or anywhere else.

20   And to the very best of my knowledge,

21   there are no errors anywhere in my work in this

22   matter.

23   Q.   All right. Turn to Dr. Ferrell.

24   As I understand his report, he's

25   testing --

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1   ███

2   A.   My rebuttal or -- or I --

3   Q.   Right now I'm asking you about --

4   A.   Okay.

5   Q.   -- Dr. Ferrell's report. We'll get to

6   your rebuttal.

7   A.   Sure.

8   Q.   As I understand it, he's testing a

9   hypothesis, using the principal component

10   analysis, that the returns of other

11   cryptocurrencies explain, to a level of

12   statistical certainty, the entirety of the XRP

13   returns. Is that correct?

14   A.   I'm sorry, I don't -- I don't

15   understand that description of what he's doing.

16   That doesn't sound -- I -- I -- that's not how I

17   would describe anything that he's doing.

18   Q.   Why don't we -- do we have

19   Dr. Ferrell's report?

20   (Expert Report of Dr. Allen Ferrell

21   was marked Exhibit 12 for identification,

22   as of this date.)

23   Q.   All right. Let me -- let me try in

24   Dr. Ferrell's own words. Take a look at

25   page 48, Footnote 178.

1

2   A.   Sure. Page 48.

3   Footnote 178. Yes.

4   Q.   And why don't you read the --

5   A.   You just want me to read the footnote?

6   Q.   Yeah, up to "et cetera," and then the

7   cite.

8   A.   If the null hypothesis of the constant

9   term equals zero are rejected, which is not the

10   case in Exhibits 3-7, that would merely mean

11   that the factors used in the model were

12   insufficient to explain the average monthly XRP

13   price return and that there were potentially

14   additional factors that needed to be included.

15   A rejection of the null of the zero

16   constant term cannot be used to learn the nature

17   or identity of the additional factors that

18   should be added to the model and whether those

19   factors are related to the cryptocurrency

20   market, other asset markets, political

21   sentiment, changes to regulation, et cetera.

22   Q.   Do you agree with Dr. Ferrell's

23   characterization of rejecting or accepting the

24   null hypothesis of the constant equaling zero?

25   A.   I would not have characterized it this

1

2   way, to be perfectly honest with you.

3   I -- I just -- I just wouldn't --

4   would never have described it this way.

5   Q.   Well, do you have an understanding of

6   what he's referring to when he's talking about

7   the constant term?

8   A.   I -- I -- I understand -- I understand

9   what he's trying to say up to a point. And then

10   he says things that I don't quite understand

11   what --

12   Q.   Let's just stick with my question.

13   A.   Sure.

14   Q.   Do you understand what the -- what the

15   phrase, "constant term," refers to as used in

16   Footnote 178?

17   A.   I do.

18   Q.   And what is your understanding?

19   A.   It refers to the intercept or constant

20   in a factor regression model.

21   Q.   And what does it mean to reject the

22   null hypothesis of the constant term equaling

23   zero?

24   A.   So, when you estimate the model, you

25   will have an estimated value for that constant

1   ███

2   term.

3   And, coincidence aside, the number

4   will not actually be zero. It will be

5   something.

6   I think in his case, if I remember

7   correctly, it's .058, if memory serves.

8   So that's the estimate of alpha, or

9   the constant term. 058.

10   Now, around that estimate, there is

11   some uncertainty. That range of uncertainty

12   might be narrow, it might be wide. In his case,

13   one standard deviation is .042, if memory

14   serves. Again, this is just period one of his

15   model.

16   So what does that mean?

17   That means that 95 percent of the

18   time, the actual alpha, so he -- so he's got an

19   estimate of alpha -- backing up a second.

20   He has an estimate of alpha. You have

21   to imagine that there is an actual true alpha

22   out there, somewhere. He's got an estimate of

23   it.

24   Under certain conditions, 95 percent

25   of the time, the true alpha lies within a range

1   ███

2   around his estimate of alpha.

3   I just want to make it -- with me so

4   far?

5   Okay.

6   Q.   It doesn't matter. Just answer the

7   question.

8   A.   Okay. All right. So I just -- I want

9   to make sure I'm being understood.

10   So what he's saying is that that

11   range, centered at .058 plus or minus 1.96 times

12   .042, includes the number zero. So 058, it goes

13   below zero, and then, of course, it goes up to

14   14.

15   And so he would say, quite correctly,

16   that under customary standards, you could not

17   reject the hypothesis that -- that the true

18   alpha is the number zero.

19   Q.   Okay. And fair to say, because I

20   can't put all of the --

21   A.   I'm trying, I'm trying.

22   Q.   -- econometric qualifications into my

23   question every time.

24   If I say alpha is zero, can we agree

25   that what I'm referring to is what you just

1

2   described, that the difference between the true

3   alpha and his estimated alpha is statistically

4   insignificant? Is that a fair summary?

5   A.   You were so close right up to the end.

6   I -- I will agree we can -- we can use the

7   phrase, alpha is zero, to refer to cases where

8   we cannot reject the hypothesis that alpha is

9   zero. Is that satisfactory?

10   Q.   As long as you understand and we

11   agree, the record's clear --

12   A.   I understand.

13   Q.   -- when we say alpha's zero.

14   A.   It's clear to me. If it's

15   satisfactory to you, then that's fine.

16   Q.   All right. And in substance, again at

17   a high level, what Dr. Ferrell is trying to test

18   is whether the alpha in his principal component

19   study is zero. Correct?

20   A.   That's one of the things he's trying

21   to test, yes.

22   Q.   And, in fact, he concluded, using his

23   principal component analysis, that the alpha was

24   zero. Is that right?

25   A.   That is correct.

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1

2   Q.   All right.

3   MR. MOYE: Reid, when you have a

4   minute, could we take a break?

5   MR. FIGEL: Sure. Now is as good time

6   as any.

7   THE VIDEOGRAPHER: We're going off the

8   record at 5:11 p.m.

9   (Recess from 5:11 to 5:25.)

10   THE VIDEOGRAPHER: We're back on the

11   record at 5:25 p.m.

12   Q.   All right. Dr. ████ in your rebuttal

13 report, you don't report or state that you did

14 any econometric analysis that indicates that the

15 correct alpha in Dr. Ferrell's principal

16 component content study is not zero, did you?

17   A.   Well, that's -- that's -- there are a

18 lot of nuances to that question.

19   Q.   Could you start with yes or no if you

20 can?

21   A.   Well, I can't. I genuinely can't.

22 Because what I do show in my report is that a

23 parameter like alpha, in Dr. Ferrell's

24 specification, is -- is there's evidence and

25 reason to believe that it changes over time.

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1

2   And so I show in -- in one section of

3   my report that if you allow alpha to change over

4   time, take everything else Dr. Ferrell is doing

5   as given, you can get nonzero estimates that

6   way.

7   I will say, yes, that if I simply

8   replicate what Dr. Ferrell did, I get

9   Dr. Ferrell's numbers.

10   But that's -- that's a sort of narrow

11   yes.

12   Q.   Are you offering an opinion in this

13   case that the proper application of

14   Dr. Ferrell's principal component analysis

15   should have resulted in a nonzero alpha?

16   A.   As I explain in my report, the

17   question is, frankly, not interesting. It could

18   be zero. It could be nonzero. It doesn't shed

19   any light on any helpful question that I can see

20   in this matter. They -- the presumption when

21   running a factor model is that alpha will be

22   zero. That is ordinarily what you would expect.

23   Finding a zero alpha is unremarkable.

24   Q.   So is the answer to my question that

25   you will not be offering an opinion in this

1   ████

2 litigation that a proper application of

3 Dr. Ferrell's principal component analysis would

4 have yielded a nonzero alpha?

5   A.   I struggle to say yes to that, because

6 in my view, a proper application would allow for

7 parameters to change over time.

8   And when you do that, there is

9 evidence that alpha is not zero.

10   Q.   Can you show us where in your

11 report -- that's Exhibit 2 -- you describe the

12 opinion you intend to offer, that whatever

13 adjustments you feel are appropriate to

14 Dr. Ferrell's principal component analysis,

15 would have resulted in a nonzero alpha?

16   A.   It's -- so I would point you to

17 page 3, the second bullet, beginning, The

18 statistical analyses employed by Dr. Ferrell are

19 not robust in many respects.

20   Sub-bullet 2 to that, Dr. Ferrell does

21 not appear to have considered that certain

22 parameters of his model can and do change over

23 time.

24   That is further developed -- I believe

25 it's the very last section of my report --

1   ▆

2   Q.   Before you go to that -- I don't mean

3 to interrupt.   Just on these two points --

4   A.   Yes.

5   Q.   -- what I heard you say was a

6 criticism of Dr. Ferrell's study, not that you

7 are offering a contrary opinion that had he done

8 the study the way you believed it should have

9 been done, it would have resulted in a nonzero

10 alpha.   Is that correct?

11   A.   I -- I'm not sure that that's correct.

12 As I say here, in my opinion, a proper analysis

13 would have allowed parameters to change.   And I

14 show in my report, I -- allowing alpha to change

15 can produce a nonzero alpha.   So I --

16   Q.   I understand that it's theoretically

17 possible.   My question is, are you offering the

18 opinion that if he had done -- withdrawn.   Let

19 me start over.

20   Are you offering the opinion in this

21 litigation that had Dr. Ferrell done the

22 analysis that would have, as you say, allowed

23 the parameters to change, that that would have

24 resulted in a nonzero alpha?

25   A.   To that I have to say, yes, because it

1　　　　　　　　　███

2　does.

3　　　　Q.　　Where do you set out the calculations

4　that show that with the adjustments you believe

5　are appropriate, the result is a nonzero alpha?

6　　　　A.　　That is Exhibit -- Figure 17,

7　literally the last page before Appendix A.

8　　　　　　　It's precisely what I am doing in this

9　exhibit, is I'm showing that allowing alpha to

10　change over time, can produce estimates of alpha

11　that are significantly different from zero. And

12　it can produce estimates of a change in alpha,

13　that is significantly different from zero.

14　　　　Q.　　Right. So let's go -- you have -- you

15　have -- Figure 17 in front of you?

16　　　　A.　　I do.

17　　　　Q.　　All right. As I understand Figure 17,

18　the second column is the alpha that Dr. Ferrell

19　calculated. Correct?

20　　　　A.　　It's an alpha of the type that

21　Dr. Ferrell calculated, yes.

22　　　　Q.　　And then your middle column is your

23　data or your calculations or the results of your

24　calculations that showed, had he made the

25　adjustments that you contend were necessary,

1   ████

2   alpha would have changed in the amounts that you

3   set forth. Correct?

4   A.   So to be clear, the particular

5   analysis that I'm running here, which is --

6   which is a demonstration of principle, is to

7   say, as an example of allowing a parameter to

8   change, imagine that alpha changed once

9   Ripple Labs received its BitLicense.

10   Now, I'm not saying it has to change.

11   It might change. I'm just allowing it to

12   change.

13   And so what Figure 17 is showing is,

14   if you -- if you make that allowance, you can

15   find, in several cases, that with that

16   allowance, alpha becomes significantly negative,

17   and that change in alpha post BitLicense is

18   significantly positive.

19   Q.   Well, the -- let's just make sure

20   we're -- the record is clear here. The center

21   column under the heading, Post BitLicense Period

22   Change in Alpha, is the amount of the change in

23   alpha. Correct? It's not the resulting alpha.

24   A.   That is correct.

25   Q.   So the resulting alpha would have been

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1   ███

2   the -- let's just talk for September 4, 2015 --

3   would have been the negative .04 plus the .05,

4   correct?

5   A.   Correct. The way to interpret -- the

6   way to interpret this --

7   Q.   Just stay with me.

8   Correct, right?

9   A.   Well --

10   Q.   So had you added a column that said,

11   Alpha Post BitLicense Period, you would have put

12   in the number .01; is that correct?

13   A.   Correct. Alpha -- alpha -- what --

14   the column called alpha, you could describe as

15   alpha pre BitLicense. Then there's a change.

16   You would add those two numbers to get alpha

17   post BitLicense.

18   Q.   Correct. And just doing the

19   arithmetic, which I can do, you'd start with a

20   negative .04. And you add positive .05. That

21   results in positive .01. That's what the

22   post-BitLicense alpha would be. Correct?

23   A.   In that case, yes, that is correct.

24   Q.   And where in your report do you say

25   that the post-BitLicense alpha is nonzero?

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1

2   A.   Well, I -- that was not your question,

3   and that's not what I said. You asked me about

4   alpha. So everywhere here that you see a

5   significant negative, under the alpha column,

6   that would correspond to a significantly

7   negative pre-BitLicense alpha.

8   So to the question, Is alpha always

9   zero? The answer is no. It's not always zero.

10   Pre-BitLicense alpha is sometimes significantly

11   negative.

12   To that you can couple sometimes a

13   significantly positive increase once Ripple Labs

14   gets its BitLicense. The net result of those

15   two things, the post-BitLicense alpha, is

16   sometimes going to be numerically greater than

17   zero. I can't tell from looking at this whether

18   it is statistically greater than zero.

19   Q.   So what you are saying is that the

20   alpha that you calculate after the BitLicense

21   was awarded should be used to change the alpha

22   before the BitLicense was awarded?

23   A.   I'm saying that alpha -- what does

24   alpha represent? Alpha represents an average

25   excess return in XRP prices after controlling

1   ███

2   for all the factors that you're controlling for.

3   That's what alpha represents.

4   Pre BitLicense, that average is

5   sometimes significantly negative.

6   Then with the BitLicense, there is a

7   change, which is sometimes significantly

8   positive. And post BitLicense, that average is

9   the combination of the two. The post license --

10   post-BitLicense average may or may not be

11   statistically different from zero. I can't tell

12   by looking at this table. I don't know the

13   answer to that.

14   But the table is already enough to

15   establish that the pre-BitLicense alpha is

16   statistically different from zero. So to the

17   question, Is alpha always zero? I would have to

18   say that the answer is no.

19   Q.   Why does the change you calculate in

20   alpha following the BitLicense affect the alpha

21   prior to that time?

22   A.   It doesn't.

23   So you had -- it was earning -- there

24   was -- there was an alpha for the several months

25   before it got its BitLicense, which was in some

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1

2   cases significantly negative. And then there's

3   an alpha in the several months after it gets its

4   BitLicense, which is sometimes significantly

5   much more positive.

6   So you go from here to here.

7   That's -- that's what this is saying.

8   Q.   Well, let's just start: Do you

9   contest Dr. Ferrell's calculation of alpha in

10 your Figure 17 in the second column?

11   A.   All of Figure 17 is a criticism of

12 Dr. Ferrell's approach to dealing with alpha.

13 Dr. Ferrell's approach is to assume that alpha

14 remains unchanged for five years or seven years.

15   And my examination of cryptocurrency

16 data leads me to think that none of these

17 parameters is going to be stable for five years

18 or seven years.

19   And I'm simply demonstrating here that

20 if we had simply allowed, just allowed the

21 possibility for alpha to be different before and

22 after Ripple gets its BitLicense, you would find

23 significant evidence that alpha is different

24 before and after it gets its BitLicense. That's

25 what Table 17 reflects.

1 ▮

2   Q.   Did you do any calculations or studies

3 that allows you to demonstrate that alpha should

4 have been different before Ripple got its

5 BitLicense?

6   A.   Yes. And I would point you to

7 Figure 17.

8   Q.   And what Figure 17 shows, as I

9 understand it -- and correct me if I'm wrong --

10 is the amount of change in alpha that you

11 observe following the award of the BitLicense.

12 Correct?

13   A.   Correct.

14   Q.   So -- and the BitLicense is a factor,

15 correct, or an event?

16   A.   It's an event, yes.

17   Q.   Yes. That has an impact. Correct?

18   A.   I think so.

19   Q.   And according to you, it results in a

20 change in alpha, correct?

21   A.   Correct.

22   Q.   So what about that makes the alpha

23 that Dr. Ferrell calculated for the period

24 before the award of the BitLicense nonzero?

25   Or inaccurate. Let's not even get to

1   █████

2   nonzero; the -- the values that he created are

3   inaccurate.

4   A.   The val-- Dr. Ferrell is producing an

5   estimate of alpha under the assumption that

6   there -- that it is constant, that it does not

7   change.

8   Now, that assumption might be true.

9   That assumption might be false. It's a testable

10   assumption. We can get the data, and we can go

11   look.

12   And that's what I do in Figure 17.

13   And what I show is that that assumption is

14   false. It's not a good assumption to make.

15   So if you estimate a model, saying,

16   I'm going to find a parameter estimate assuming

17   it's constant for seven years, or five years,

18   whatever the length of time is here, and your

19   assumption is false, you have a misspecified

20   model at the outset. And that's what I'm

21   demonstrating.

22   Q.   So let me make sure I follow you. As

23   I understand it, based on the work that you did,

24   you think there are two different alphas, there

25   are two periods, right? There's a pre

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1   ███

2   BitLicense alpha and a post BitLicense alpha; am

3   I correct?

4   A.   I'm showing that if you allow for that

5   possibility, you'll find evidence that it's

6   true.

7   Q.   All right. Did you do an analysis as

8   to whether the two alphas considered jointly

9   were statistically significant in rejecting

10   nonzero?

11   A.   I've shown that the pre BitLicense

12   alpha is significantly different from zero, and

13   I've shown that the change to the pre BitLicense

14   alpha is statistically different from zero.

15   Q.   By "statistically different from

16   zero," you're rejecting the hypothesis that

17   alpha is zero. Is that correct?

18   A.   That is correct.

19   MR. MOYE: Excuse me. Mark's going

20   sub in for me. I'm going to head out.

21   MR. FIGEL: Just for the record,

22   Mr. Moye has a plane to catch. We view

23   these as a -- a justification to depart

24   from the rule that each party can only have

25   one lawyer representing a party at a

1   ███

2   deposition.

3   And so, Mr. Sylvester will pitch in,

4   but we don't view this as a basis to argue

5   that there can be a swap in any other

6   circumstance.

7   MR. MOYE: Thanks very much.

8   Q.   Did you ever do a test to determine

9   whether these alphas, the two that you have

10 here, are jointly significant?

11   A.   Strictly speaking, no. I haven't

12 conducted a test of whether they are jointly

13 significant.

14   Q.   And why not?

15   A.   My point here was simply to show that

16 they can change over time. And that if you

17 allow them to change over time, you'll find

18 significant evidence that they do change over

19 time.

20   My expectation is that a joint test on

21 some of these days would reject the hypothesis

22 that they're both zero. I'd be surprised if it

23 didn't, but for the record, I haven't done it

24 and I don't know for sure.

25   Q.   So you're not offering an opinion that

1

2   the -- the two alphas considered jointly are

3   nonzero, correct?

4   A.   Based on this analysis, I -- I

5   wouldn't be prepared to say that. I would

6   certainly say that there is substantial evidence

7   that alpha changes, and any model that doesn't

8   allow for that possibility is misspecified.

9   Q.   Let me direct your attention now to

10   Footnote 174 of Dr. Ferrell's report.

11   A.   What page is that, please?

12   Q.   46.

13   A.   Okay.

14   Q.   All right. He writes, The R-squared

15   measures the percentage of the various -- of the

16   variation in the dependent variable, (e.g., XRP

17   price return) that the regression model

18   explains.

19   Do you agree with that statement?

20   A.   I do, yes.

21   Q.   Do you agree that a decrease in

22   R-squared itself does not disprove Dr. Ferrell's

23   conclusion that alpha -- that under a principal

24   component analysis, alpha is statistically

25   insignificant?

1

2   A.   The -- the two points are unrelated.

3   Q.   So a decrease in R-square values

4   doesn't disprove a conclusion that alpha is

5   statistically insignificant? Correct?

6   A.   It doesn't -- it doesn't -- correct,

7   it doesn't speak to the question of whether

8   alpha is statistically different from zero.

9   Q.   And I direct your attention to page --

10   paragraph 25 on page 10 of your rebuttal report.

11   A.   Yes.

12   Q.   All right. You claim that Professor

13   Ferrell's principal component analysis is,

14   quote, concentrated on three months with extreme

15   returns, while the model explains relatively

16   little of the variation on XRP's prices outside

17   of those three months.

18   A.   Correct.

19   Q.   If you could turn the page to Figure 3

20   on page 11. You with me?

21   A.   I am.

22   Q.   And the three events that you contend

23   should have been excluded are identified in

24   Figure 3, correct?

25   A.   I'm not saying they should have been

1

2   excluded. I'm -- I'm pointing out three outlier

3   returns among his 70 return observations.

4   Q.   So you agree that it was appropriate

5   for Dr. Ferrell to include these three returns

6   in his principal component analysis. Correct?

7   A.   I didn't say that either. I'm

8   pointing out that in the set of 70 months, there

9   are three returns that are unusually large

10   compared to the other 70. That's what I'm

11   showing here.

12   Now, the question becomes, So what.

13   And I proceed to investigate the implications

14   and consequences of that.

15   It's possible that it doesn't matter.

16   It turns out in this case, that these

17   three returns are driving a lot of his results.

18   Q.   Just before we get to -- move on from

19   this, why did you not raise the same set of

20   concerns with respect to the price return on the

21   far right of the horizontal axis?

22   A.   I -- I simply went -- I simply went

23   from the first to the second to the third.

24   That -- that next one is surely the fourth. And

25   with three months, one can account for

1

2   94 percent of the variation in the set of 70.

3   With another four months, you know,

4   that would rise to something else. But I -- I

5   stopped where I -- where I needed to stop, which

6   is how many months account for 94 percent of the

7   variation in his data.

8   Q.   Let's turn the page and go to

9   Figure 4?

10   A.   Yes.

11   Q.   This effectively is an effort to

12   replicate Professor Ferrell's analysis with

13   omitting those three days; is that correct?

14   A.   No, no, that's not what this is at

15   all.

16   Q.   Well, why don't you tell us what you

17   purport to do in Figure 4.

18   A.   So Figure 4 is simply taking the

19   70 observations that Dr. Ferrell -- so let's

20   back up.

21   Dr. Ferrell has 70 observations, he

22   has a number of factors, he runs a regression,

23   he reports a very high R-squared.

24   I'm taking the same 70 observations,

25   and I'm simply putting a fixed effect on three

1

2   of those months. I don't have any of his other

3   factors. I just say, Let's put a fixed effect

4   for this month, this month, and the other month.

5   And that alone accounts for 94 percent of the

6   variation.

7   The purpose of this table is simply to

8   demonstrate an empirical fact, that three months

9   out of 70 accounts for 94 percent of the

10   variation in the entire set of 70.

11   This right now is just a --

12   demonstrating a fact.

13   Q.   What do you mean by "fixed effect"?

14   A.   They're also -- they -- they're

15   sometimes called dummy variables. Back when I

16   was a student, they were dummy variables, and at

17   some point that fell out of favor because it --

18   maybe it sounds dumb. And so people started to

19   say fixed effects instead. But it's just a --

20   it's just a flag to pick up this -- this

21   observation.

22   Q.   How is that different than omitting it

23   from the study?

24   A.   Well, you're almost right, with

25   respect.

1

2   And I'm not suggesting that he do

3   this, but you would be correct that in the

4   context of his model, if he wanted to, he could

5   have put dummies for each of these three months,

6   and that would be effectively the same thing --

7   in terms of the other parameters of his model,

8   that would effectively be the same thing as

9   removing three observations from the model.

10   But that's not what I'm doing here,

11   and that's not the point that -- that I'm making

12   in this section of my report.

13   Q.   So if I understand your testimony,

14   it's just observational; is that right? You're

15   just explaining how much of the variation can be

16   traced to those three --

17   A.   To those three months. At this point

18   in this section, that's all I'm doing.

19   Three months account for 94 percent of the

20   variation.

21   This is not yet -- if you stopped

22   here, this is not yet a criticism of anything

23   that Dr. Ferrell has done. Simply documenting

24   an empirical fact.

25   Q.   And you're not challenging or

1　████

2　contesting the accuracy of the price returns

3　that he calculated on those three instances.

4　　　A.　That is correct. I'm not -- I'm not

5　arguing that those returns were not real and did

6　not actually happen in XRP prices.

7　　　Q.　All right. If you could turn the page

8　and go to -- give me just a second.

9　　　　　Let's go to Figure 5. Can you tell us

10　what Figure 5 represents.

11　　　A.　So, out of these 70 months in his

12　factor model, Dr. Ferrell reports an R-squared

13　of about 93 percent, plus or minus. That's Fact

14　Number 1.

15　　　　　Fact Number 2, I show just three of

16　those 70 months accounts for 94 percent of the

17　variation. That's Fact Number 2.

18　　　　　Now, the question becomes, is

19　Dr. Ferrell getting a high R-squared only

20　because his model explains those three months

21　and doesn't explain the other 67?

22　　　　　That's possible.

23　　　　　Or is Dr. Ferrell getting his

24　R-squared because his model does a really good

25　job of explaining all 70 months including the

1   ███

2   three outliers? That's also possible.

3   I -- I don't know yet.

4   So that is what I'm going to test.

5   And so in this figure, what I've done

6   is I've replicated Dr. Ferrell's model, I've

7   taken his predictions for 67 of the 70 months.

8   And I'm asking the question: How powerful is

9   his model outside of the three months that we've

10   been talking about? That's the question.

11   And, of course, I don't know the

12   answer before I -- before I do the analysis. It

13   might be very powerful. Or it might not be

14   powerful. What I find is, it's not powerful.

15   In fact, outside of those three

16   months, Dr. Ferrell's model is actually worse

17   than no model. He would be better off with no

18   model.

19   So that's -- that's the point that I

20   want to make, is the high R-squared he reports

21   is not because he's done a very good job of

22   explaining every point in his data set. It's

23   because he's done a good job of explaining three

24   points in his data set and really is not

25   explaining anything that happens the other

1   ■

2   67 months.

3   Q.   So when you testified with respect to

4   Figure 5, you've taken his predictions for 67 of

5   the 70 months and asking the question: How

6   powerful is his model? In Figure 5, you are

7   excluding the three outlier dates. Correct?

8   A.   Correct. I'm taking his model

9   estimated on all 70, and I'm simply taking the

10   predictions of that model for the other 67

11   months besides the three that we're talking

12   about.

13   Q.   And what is the -- what is the basis

14   in the academic literature that causes you to

15   believe that it's appropriate to remove three

16   days of data out of 70 that you don't contest is

17   a mismeasurement and exclude it from your model?

18   A.   Well, there's -- first of all, that's

19   not what I'm doing.

20   But to answer your question, there's

21   an entire literature of how to handle outlier

22   data points and regression models.

23   The data may be correct. Being an

24   outlier doesn't necessarily mean the data are

25   false. It simply means that they have -- they

1

2   are overly influential in your parameter

3   estimates.

4   So, for example, you have 70 points,

5   and they're all kind of bouncing around a little

6   bit like this. And then you've got one point,

7   which is just way out of scale for the others.

8   That might be the data. Nothing wrong with the

9   data.

10   If you fit a model to that series of

11   data, what can happen is that your model, which

12   is just trying to solve a problem that you've

13   given it, your model will say, Well, okay, if

14   you want me to solve this problem, what I'm

15   going to do is I'm going to figure out how I can

16   match this one point that's way outside of

17   everything else, and I'm going to not do a very

18   good job on these other points. That might be

19   okay, or that might not be okay. But that's

20   what can happen with outlier or influential

21   points.

22   That appears to be what happened here.

23   Now, if in response to this,

24   Dr. Ferrell decided that he wanted to do

25   something in the sense of he wants to have

1

2   better -- a better, more robust, more reliable

3   model by taking account of those outliers,

4   there's plenty of literature that discusses

5   appropriate ways to do that.

6   Q.   I'm going to quote from you -- from

7   the Litigation Services Handbook again. This is

8   Section 9.4.

9   It says, Practitioner should not

10   eliminate outlier data points without first

11   investigating them. The removal of data points

12   can prove dangerous. Although eliminating

13   outliers will typically improve a regression's

14   fit, it can also destroy some of the model's

15   most important information. One should

16   investigate whether substantive information

17   exists regarding these points and whether the

18   analysis should exclude them. Do they involve

19   possible measurement errors? If not, then the

20   analyst should consider including them.

21   We agree that you're not contending

22   that the three points are measurement errors,

23   correct?

24   A.   Correct. I'm not -- I'm not saying

25   that.

1

2   Q.   What did you do to investigate the

3   circumstances of those three data points?

4   A.   That's what this section is.

5   Q.   I'm not talking about the --

6   A.   This set --

7   Q.   Not talking about the effect on the

8   R-squared. I'm talking about what happened in

9   the real world as to why there were those --

10   call them outlier results.

11   A.   Well, one I point to, I mean, I -- I

12   didn't -- again, I have no reason to doubt the

13   data. I didn't concern myself with that

14   question.

15   I identify single largest outlier

16   here, happens to land -- or maybe not happens,

17   but lands on the day that Ripple Labs announces

18   its intention to escrow tokens. That might be

19   what's causing the outlier.

20   But that was -- I -- but I didn't

21   concern myself with trying to understand

22   everything that was happening on -- on these

23   three dates.

24   What the handbook is saying, I

25   completely agree with, which is if you've got

1

2   outliers, you need to do some work. That's

3   really what the handbook is saying. If you've

4   got outliers, you need to do some work to see

5   whether you want to keep them or deal with them,

6   and that's what I'm doing here.

7   Q.   And the only work that you did was to

8   associate the largest, call it outlier, with the

9   announcement of escrow --

10   A.   No, no. That's not --

11   Q.   Let me finish my question.

12   A.   Please.

13   Q.   -- and you did nothing to investigate

14 the circumstances or the context of the other

15 two outliers. Correct?

16   A.   No. No. That's -- that's --

17   Q.   When you said --

18   A.   -- incorrect.

19   Q.   -- you didn't know what happened on

20 the other two dates.

21   A.   The work -- the work of the type the

22 handbook is discussing and the type that I'm

23 discussing is to investigate whether those

24 outlier points are having undue influence in

25 your model. That's the work.

1

2   And that's the kind of -- this is the

3   kind of work that I'm doing here. This is the

4   type of investigation that an -- that an analyst

5   might do to determine if these three outlier

6   points are biasing the model.

7   Q.   Well, if the data is accurate, what

8   basis is there to exclude it as having an impact

9   on the model that purports to describe what's

10 actually happening in the real world?

11   A.   Well, the handbook lays out some of

12 these reasons, and I've explained some of those

13 reasons. An outlier point, accurate though it

14 may be, may be biasing your model, right?

15   Your model may adjust its parameters

16 in such a way that it will get that one point

17 right, but get a lot of other points wrong. And

18 in some circumstances, you might say that's

19 fine. And in other circumstances, you might say

20 that's not fine.

21   Because I don't want a model that

22 doesn't work most of the time. And that's what

23 we have here.

24   Dr. Ferrell's model does not work,

25 67 out of 70 months.

1

2   So if -- if -- I would -- if it were

3   me, I would deal with these outliers, because

4   I -- I don't want to have a model that does not

5   work 67 out of 70 months.

6   Q.   So when the handbook says one should

7   investigate whether substantive information

8   exists regarding these points and whether the

9   analysis should exclude them, you don't think

10   that requires an investigation into the factual

11   circumstances that led to the data?

12   A.   No, I don't believe that that -- that

13   is necessarily -- or at least I certainly didn't

14   read that to be some kind of investigation into

15   the circumstances that created the data.

16   I interpret that to mean, you should

17   see if those points have information that is

18   consistent with your model with respect to the

19   rest of the points. That's what outlier

20   analysis is. That's what I've done here.

21   No -- no researcher would -- worth his

22   salt -- his or her salt would say, Just because

23   the data are accurate, I therefore cannot deal

24   with them as outliers in a model.

25   That -- that's -- not a proper

1

2   position to take.

3   Q.   So just so the record's clear, you did

4   no factual investigation of the circumstances

5   that led to what you call the outlier price

6   points. Correct?

7   A.   I had no reason to doubt that the

8   pricing data were accurate.

9   Q.   But you don't know what the

10   circumstances were that were associated with the

11   outlier data. Correct?

12   A.   Again, I -- one of them, I happened to

13   recognize the date. But what the circumstances

14   are that are causing those prices is not the

15   point of this analysis.

16   The point of this analysis is, do

17   these three data points, correct though they may

18   be, are they biasing the model and rendering it

19   worthless in 67 out of 70 months?

20   And the answer is yes.

21   Q.   All right. And in Figure 5, you come

22   up with an unadjusted R-square of .328.

23   And you state that -- well,

24   Professor Ferrell's model explains 93.5 percent

25   of the variation in -- of all 70 months, at

1

2   best, it only explains 32.8 percent of the

3   variation of 67 of those 70 months.

4   A.   That is what I wrote, yes.

5   Q.   Right. And if you could read

6   paragraph 30, the first sentence, please.

7   A.   From Figure 5, we see that

8   Dr. Ferrell's model is statistically unbiased.

9   Alpha is numerically close to zero, and one

10   cannot reject the hypothesis that it is zero at

11   any reasonable significance level.

12   Q.   And that is true with respect to the

13   information you calculated in Figure 5, correct?

14   A.   That is the sentence describing what's

15   in Figure 5, yes.

16   I should point out, just so there's no

17   confusion, this alpha is different from

18   Dr. Ferrell's alpha. But the sentence is true.

19   Q.   Excuse me a second.

20   All right. If you could go to

21   paragraph 39. And page 19.

22   A.   Yes.

23   Q.   You with me?

24   A.   Yes, I am.

25   Q.   These are other outlier data.

1

2   Correct?

3   A.   Correct.

4   Q.   But this is for a particular digital

5   asset, THC?

6   A.   Correct.

7   Q.   And you identify three days in which

8   the THC prices appear to be incorrect.

9   A.   That is correct.

10   Q.   Right. And those are days where the

11   price per unit, I guess, is 11- or $12 million?

12   A.   Correct.

13   Q.   Now, Professor Ferrell calculated his

14   returns by looking to prices on a start date and

15   an end date. Correct?

16   A.   That is correct.

17   Q.   And didn't look at price information

18   in between.

19   A.   That is correct.

20   Q.   All right. And in order to calculate

21   the return, between August and September,

22   Professor Ferrell compared the prices of

23   August 8 and September 5. Correct?

24   A.   I -- I don't have the sequence of

25   dates memorized, but he would have had a start

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1

2   date and a date 28 days later, and he would have

3   compared those two prices.

4   Q.   And so the price spikes that you

5   identify in Figure 10, if they didn't occur on a

6   date where he was getting price data, they

7   wouldn't affect his results, correct?

8   A.   Correct. Which is why I -- I'm

9   speculating that he didn't notice the problem in

10   the data.

11   Q.   And does the -- do these price spikes

12   affect the calculations based on the data that

13   he used?

14   A.   It speaks to the robustness of his

15   approach.

16   So if he's going to start on the

17   particular day that he starts, he will not land

18   on these particular prices, and they will not

19   impact his results.

20   But the choice of start date is fairly

21   arbitrary, and had he chosen another date, which

22   would have just as valid from a principal point

23   of view, he would have landed on these days, and

24   that's when he would have discovered this

25   problem.

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1

2   That's, for instance, one of the ways

3   that came to my attention.

4   Q.   But are you offering an opinion that

5   Dr. Ferrell's conclusions are unreliable because

6   the reported price of THC spiked on the

7   three days that you set forth in your report?

8   A.   I'm very careful to say that these

9   price spikes do not impact the calculations that

10   Dr. Ferrell uses.

11   Of course, I think his conclusions are

12   unreliable for a host of reasons.

13   But his calculations, because of the

14   particular start date that he picked and the

15   particular sequence of dates that follows

16   therefrom, do not land on these dates. It does

17   raise questions, in my mind, about the integrity

18   of his data source.

19   But to your question, that's correct.

20   These particular prices, though I think they're

21   clearly wrong, are not altering his

22   calculations.

23   Q.   All right. You identified another

24   outlier month, one return date in which the

25   price return for THC equaled 8,916 percent.

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1

2   That was in January of 2016.

3   Do you see that?

4   A.   Yes, I do.

5   Q.   He used 6,370 return dates in his

6   primary component analysis. Correct?

7   A.   I -- I'm sorry, he used what?

8   Q.   A total of 6,370 return dates in

9   his --

10   A.   I haven't done that arithmetic. I --

11   I don't know.

12   Q.   And he didn't include THC in

13   estimated -- Estimation Period 1, did he?

14   A.   It is not part of Estimation Period 1,

15   that's correct.

16   Q.   And it was only one out of 11

17   principal components in Estimation Period 2,

18   correct?

19   A.   It dominates the second principal

20   component in Estimation Period 2.

21   Q.   And what analysis did you perform to

22   determine that this one month in one currency

23   dominated his -- sorry.

24   Dominated his results, I think is what

25   you said.

1

2   A.   I said dominated his second principal

3   component.

4   Q.   So what is your basis for your

5   testimony that a single-event day dominated his

6   second principal component?

7   A.   Well, I said that the coin dominated

8   his -- the second principal component. And I --

9   I would refer you to Figure 13 of my report.

10   Q.   Let's go to Figure 14.

11   What does Figure 14 purport to do?

12   A.   Showing how things would have been

13   different had Dr. Ferrell noticed the flaw in

14   his methodology. The flaw in his methodology,

15   which doesn't apply just to THC but it's a

16   general flaw in his entire approach, is splicing

17   two pricing data series together in the way that

18   he does.

19   This is just an example of the

20   problems that that creates. It's a particularly

21   stark example, but it's just one example.

22   By doing that, he creates a variation

23   or a variance in his principal components, which

24   is not real. It's not part -- it's not real in

25   the data. It's created by this -- this -- this

1

2   poor methodology.

3   And so what I'm just showing here is,

4   if -- if we draw -- if we didn't have the THC

5   dominating the second principal component, I'm

6   just showing how the second principal component

7   that emerges is much more correlated with XRP

8   than what Dr. Ferrell's second principal

9   component is.

10   Q.   Does your Figure 14 show a

11   statistically significant alpha on your

12   recalculated numbers?

13   A.   No. In -- in Figure 14, with just

14   two principal components, whether Dr. Ferrell's

15   or whether a corrected second principal

16   component, alpha is not statistically different

17   from zero in either case.

18   Q.   So it wouldn't change his results.

19   Correct?

20   A.   No, no, I don't know that.

21   Again, the general method, the general

22   problem here, is you have pricing data from one

23   source and you have pricing data from another

24   source, and you just slap one on top of the

25   other. That's the problem. This is -- this is

1

2   an example of that problem.

3   Now, he does that for virtually and

4   maybe literally every single coin in his data

5   set. And you can't do that. That's --

6   that's -- that's a bad methodology. That is the

7   wrong way to combine data sets.

8   The right way to combine data sets is

9   in return space. Dr. Ferrell didn't do that.

10   He just took one price and superimposed another

11   price on top of it.

12   That creates problems. This is just

13   an example of a problem that that methodology

14   creates.

15   Had he -- had he done it correctly,

16   had he corrected it -- I didn't investigate it,

17   I don't know if that would have created a

18   statistically significant different alpha, I

19   don't particularly care. I don't know whether

20   it would or not, but I'm simply pointing out

21   that his methodology is fundamentally flawed.

22   Q.   Without quibbling with your testimony

23   about his methodology, you didn't do the

24   calculations to determine whether having used

25   the methodology that you would have preferred

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1

2   would have resulted in a different result, with

3   respect to rejecting the nonzero conclusion for

4   alpha. Isn't that correct?

5   A.   I did not undertake that analysis, no.

6   Q.   You could have, correct?

7   A.   I could have, yes.

8   Q.   And you didn't.

9   A.   I didn't. I...

10   Q.   All right. Let's go to paragraph 48.

11   If you would.

12   You calculated a change in R-squared

13   and Principal Component 1, assuming estimation

14   period began on September 10 instead of

15   September 3, correct?

16   A.   Correct.

17   Q.   And in your report, you observe that

18   R-squared would vary based on the start date

19   that Dr. Ferrell selected. Correct?

20   A.   Correct.

21   Q.   And you demonstrated that you can come

22   up with differing R-squared calculations,

23   correct?

24   A.   Yes.

25   Q.   You don't recalculate any alphas

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2   associated with a change in start date, do you?

3   A.   No, not here, no.

4   Q.   And so you're not offering an opinion

5   as to whether the alphas that Dr. Ferrell

6   determined in his principal component analysis

7   would have been different, in other words, if it

8   would have been able to -- if he would have been

9   able to reject the nonzero conclusion, had he

10 used different start dates. Correct?

11   A.   I'm not investigating that particular

12 question in this section, that is correct.

13   I just want to demonstrate that

14 different start dates can move things around

15 quite a lot, and that's not a desirable property

16 of this kind of framework.

17   MR. FIGEL: How much time do we have

18   left?

19   THE VIDEOGRAPHER: About two minutes.

20   MR. FIGEL: All right. I'll -- I'll

21   spare you the last two minutes, even though

22   we can go for several more hours. Let --

23   let's just make sure nobody on the phone

24   wants to say anything.

25   Any -- any questions for Dr. Metz from

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1   ███

2   Cleary or Paul Weiss?

3   Okay. I texted him. Hearing none --

4   All right. Dr. ████ thank you for

5   your time. No further questions.

6   THE WITNESS: Thank you.

7   MR. SYLVESTER: Thanks.

8   THE VIDEOGRAPHER: This marks the end

9   of the deposition. We're going off the

10   record at 6:16 p.m.

11   (Time noted: 6:16 p.m.)

12

13

14

15

16   _____

17   ████████, Ph.D.

18   Subscribed and sworn to before me

19   this   day of   2022.

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 2                    C E R T I F I C A T E

 3

 4    STATE OF NEW YORK      )
                             )  Ss.:
 5    COUNTY OF NEW YORK     )

 6             I JEFFREY BENZ, a Certified Realtime

 7        Reporter, Registered Merit Reporter and

 8        Notary Public within and for the State of

 9        New York, do hereby certify:

10             That ███████████, Ph.D., the witness

11        whose examination is hereinbefore set

12        forth, was duly sworn by me and that this

13        transcript of such examination is a true

14        record of the testimony given by such

15        witness.

16             I further certify that I am not

17        related to any of the parties to this

18        action by blood or marriage; and that I am

19        in no way interested in the outcome of this

20        matter.

21             IN WITNESS WHEREOF, I have hereunto

22        set my hand this 22nd of February, 2022.

23

24        JEFFREY BENZ, CRR, RMR

25
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 5   -------------------EXHIBITS-------------------

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10   Exhibit 3    Copy of consolidated         51     8
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11                Ripple Labs, Incorporated,
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13   Exhibit 4    Litigation Services          89    22
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14                Financial Expert

15   Exhibit 5    Academic Paper titled "The  104    25
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 1    NAME OF CASE:


 2    DATE OF DEPOSITION:


 3    NAME OF WITNESS:


 4    Reason Codes:


 5          1.   To clarify the record.


 6          2.   To conform to the facts.


 7          3.   To correct transcription errors.


 8    Page _____ Line _____ Reason _____


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